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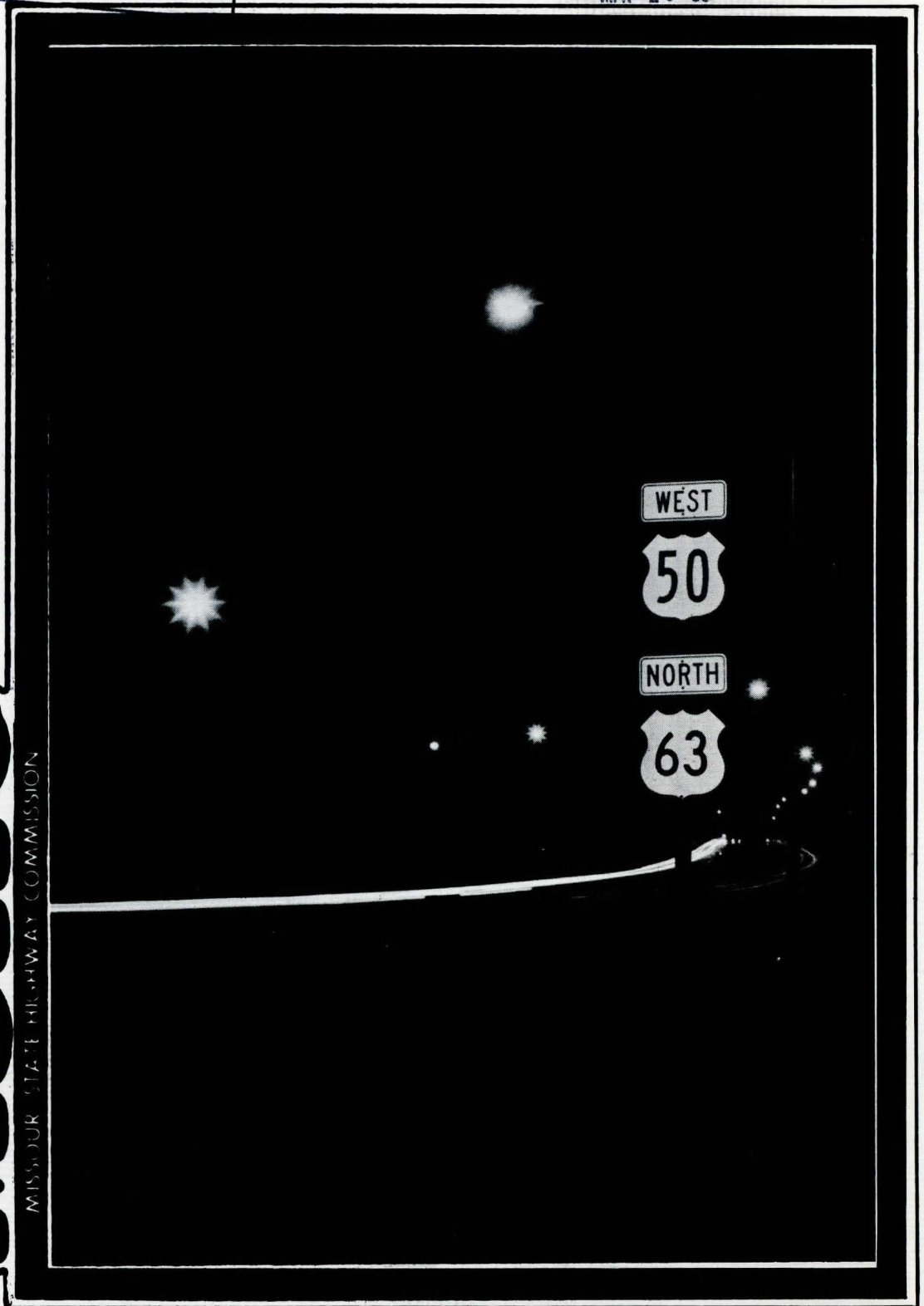
# 1979 annual report

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# MSHC

MISSOURI STATE HIGHWAY COMMISSION



# MSHC

**Jay B. Dillingham, Chairman**  
*Kansas City*

**Jack Curtis, Vice-Chairman**  
*Springfield*

**A. C. Riley, Member**  
*New Madrid*

**Daniel W. Duncan, Member**  
*St. Joseph*

**Roy W. Jordan, Member**  
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**Roy H. Goodhart, Member**  
*Hannibal*

**Robert N. Hunter, Chief Engineer**  
*Jefferson City*

**Bruce A. Ring, Chief Counsel**  
*Jefferson City*

**Irene Wollenberg, Secretary**  
*Jefferson City*

# OFFICERS

James A. King, Chief Counsel Jefferson City	Robert H. Hunter, Chief Engineer Jefferson City	Ray H. Goodson, Member Hazard	Ray W. Jordan, Member St. Louis	Frank W. Duncan, Member St. Joseph	A. C. Eiler, Member New Madrid	Jack Curtis, Vice-Chairman Springfield	Joe B. Dillingham, Chairman Kansas City
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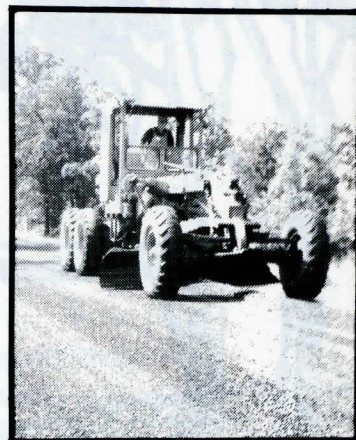
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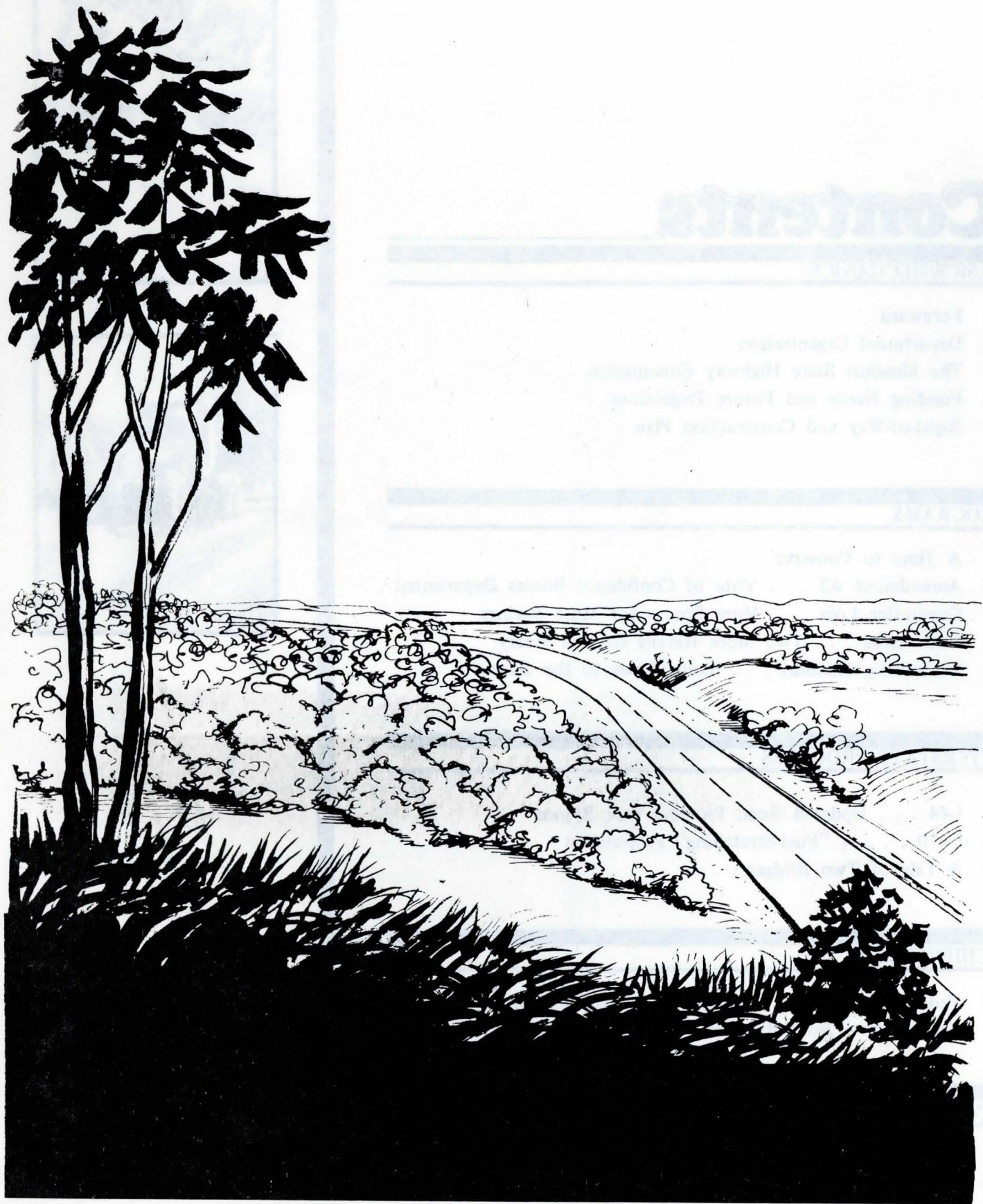
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Prepared by:  
Public Information Division

Photos by:  
Surveys and Plans Division  
Photogrammetry Section





# The Missouri State Highway Commission

... The year we behind the year another task in the Highway Building Room during 1979. One day in each month they met to decide the future of Missouri's highway system. Appointed by the Governor for overlapping terms of six years with Senate consent. They formed the Missouri State Highway Commission.

By statute in nature, the Commission in its present form was created by the Constitutional Road Law of 1921. While four members were appointed then, the number was increased in 1941 to five. The 1921 law empowered the Commission to act as a Board of Directors with the Highway Department functioning as an operating agency in doing the State's business for the people of Missouri. The Highway Commission establishes the policies and follows the overall guidance under which the men and women of the State Highway Department operate.

## Foreword

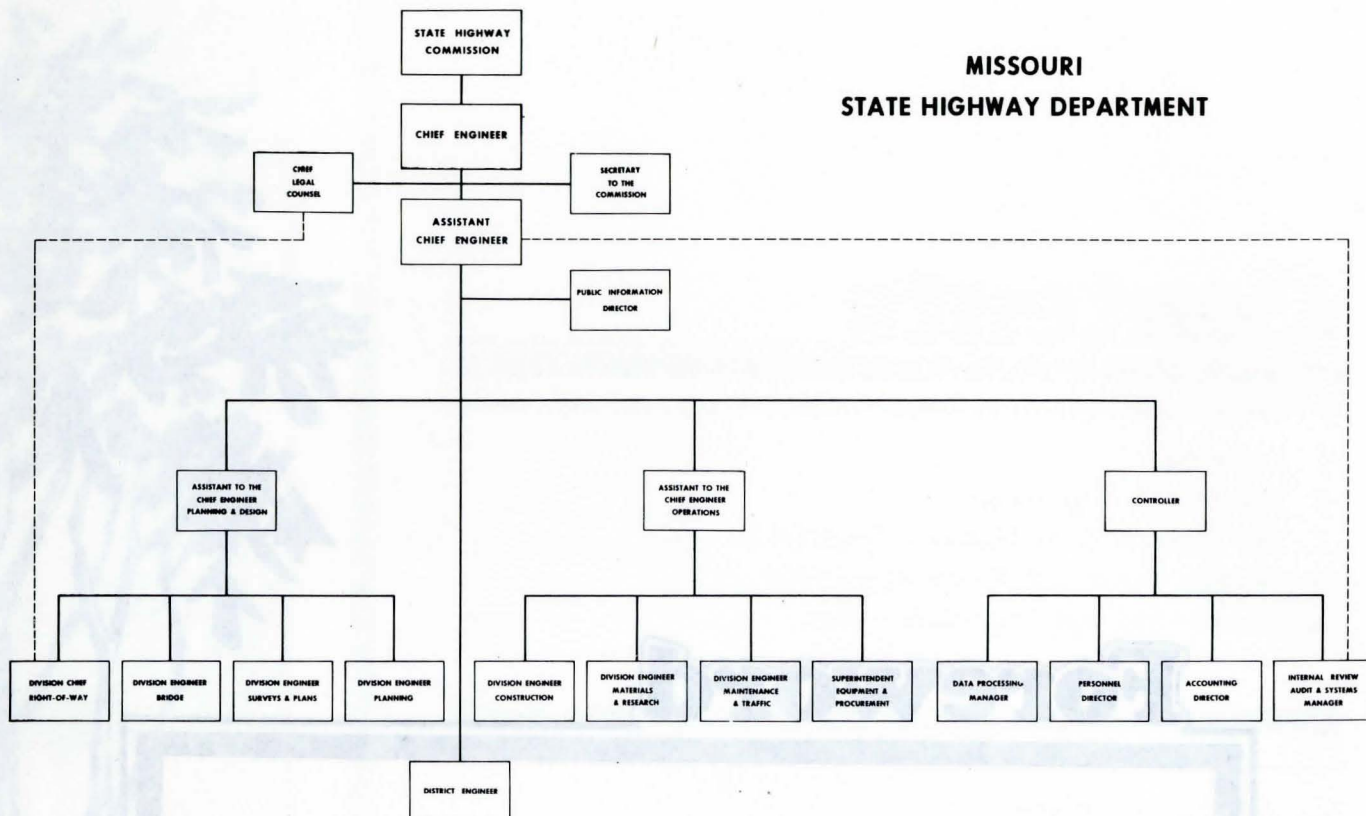
Contained herein is detailed information concerning the Missouri State Highway Department during calendar year 1979--work accomplished, work projected for 1980 as well as receipts and expenditures. Presented also, are the unmet needs of the state highway system, along with an outlined attack the Commission and Department intend to make on these needs throughout 1980.

Facts are presented in a style meant to provide easy access to statistical material. The daily functions of the various divisions within the Highway Department are outlined for reference to the part they play in the total highway picture.

An informed and interested public is vital to the Department's development and operation of Missouri's highway program. Accordingly, copies of this report are available to the news media. So far as the number of published copies permit, they are also available to interested public officials and private citizens. As required by law, the report is being furnished to the Governor.

The Department hopes this annual report will help increase the general understanding of Missouri's highway administration. Any inquiries concerning the Annual Report are welcome.





# Department Organization

The State Highway Department operates as a decentralized organization. The Headquarters Office in Jefferson City provides staff assistance and functional control for the various Departmental tasks to the ten geographic Districts of the Department. Encompassing about 12 counties, each District contains about 10 percent of the total road mileage in the state highway system. Each District is under the direction of a District Engineer, who is responsible for administering all activities in his District.

The Divisions within the Jefferson City Headquarters Office are responsible for bridge design and highway planning for the state. There are no counterparts for these particular Divisions in the Districts. But, in the main, decisions about highway construction, maintenance and operations are made at the District level, in accordance with procedures and standards established by the State Highway Department.

District headquarters offices for the State Highway Department are located in St. Joseph, Macon, Hannibal, Kansas City, Jefferson City, Kirkwood, Joplin, Springfield, Willow Springs and Sikeston.

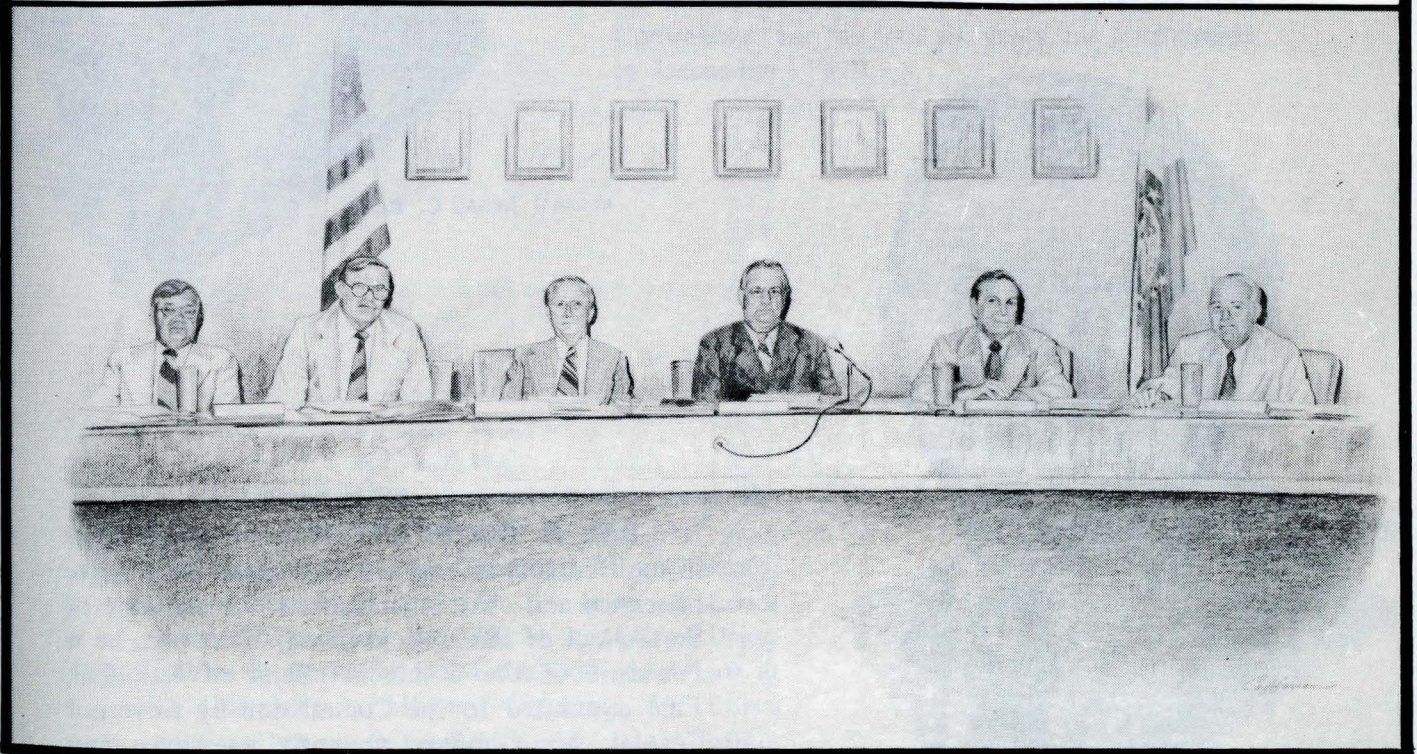


# The Missouri State Highway Commission

Six men sat behind the semi-circular desk in the Highway Hearing Room during 1979. One day of each month they met to decide the future of Missouri's highway system. Appointed by the Governor for overlapping terms of six years with Senate consent, they formed the Missouri State Highway Commission.

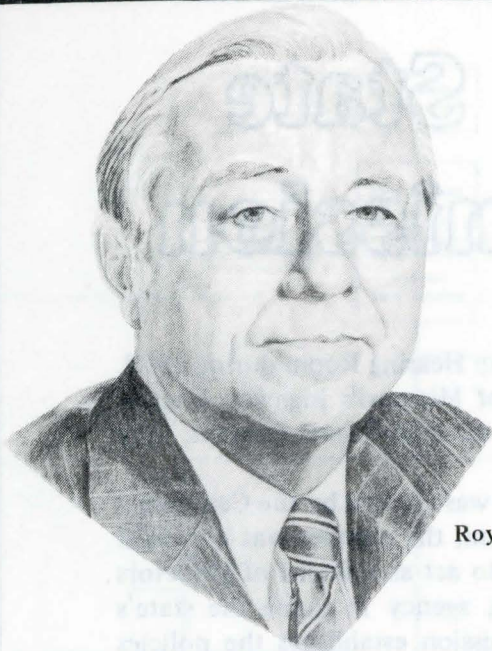
Bi-partisan in nature, the Commission in its present form was created by the Centennial Road Law of 1921. While four members were appointed then, the number was increased in 1965 to six. The 1921 law empowered the Commission to act as a Board of Directors with the Highway Department functioning as an operating agency in doing the state's business for the people of Missouri. The Highway Commission establishes the policies and furnishes the overall guidance under which the men and women of the State Highway Department do their work. In addition, it appoints the Chief Engineer, Legal Counsel and Commission Secretary to assist and carry out their policies.

Down through the years, State Highway Commissioners have come from many walks of life and from all geographic areas of the state. And each has carried a lot of responsibility. It takes time and preparation to be a commissioner—from mounds of monthly reading to keep up with highway matters to speeches before civic groups. And it's time that the Commissioners generously donate.





# They Guided the Highway System...



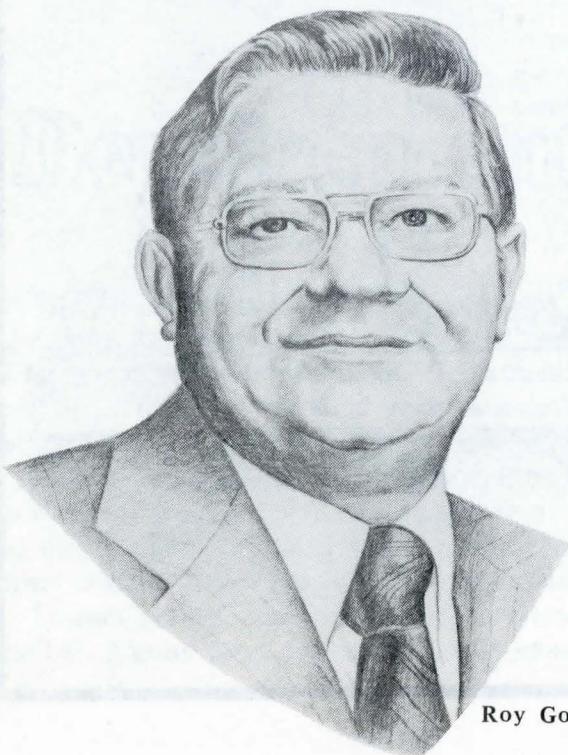
Roy Jordan

**ROY W. JORDAN**, Clayton, is an investment banker and a Vice-President of Merrill Lynch Pierce Fenner and Smith, Inc. He long has been active in the civic development of metropolitan St. Louis, and is a member of numerous service and professional organizations. He was appointed to the Commission by Governor Bond in 1975. His term expires in 1981.



A. C. Riley

**ALBERT C. RILEY**, New Madrid, is senior among present Commissioners in service to the State Highway Commission. First appointed by Governor Warren E. Hearnes in 1964, he was most recently reappointed by Governor Teasdale. His current term expires in 1983. Mr. Riley, a graduate of the University of California at Los Angeles, is an agriculture producer and a banker.



Roy Goodhart

**ROY H. GOODHART**, Hannibal, is a banker in the Hannibal area, where he long has been active in service and civic organizations. A graduate of the School of Banking, Madison, Wisconsin, he is President of the Commerce Bank of Hannibal. First appointed to the Commission by Governor Teasdale, Mr. Goodhart presently is serving a term expiring in 1983.



**JAY B. DILLINGHAM** of Kansas City is the present Chairman of the Commission. He was appointed by Governor Joseph P. Teasdale to a term ending in 1983. A Director of the Kansas City Stockyards Company, the Kansas City Connecting Railroad Company, and the Kansas City Crime Commission, he is a restaurateur with interests in Kansas City and Washington, D.C. Long active in Kansas City area civic and commercial development organizations, Mr. Dillingham has LL.B. and LL.M. degrees from the Kansas City School of Law (now the University of Missouri - Kansas City).

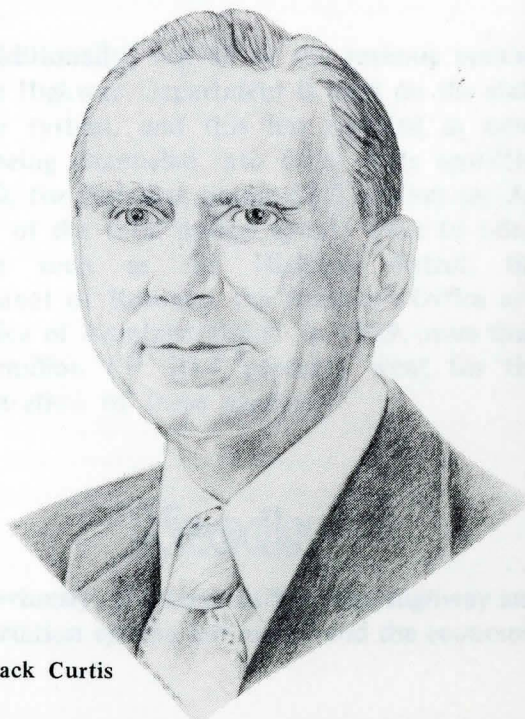


**Jay B. Dillingham**



**Daniel Duncan**

**DANIEL W. DUNCAN**, St. Joseph, is President of the Iowa-Missouri Walnut Company. He was graduated from the University of Missouri-Columbia with a degree in Forestry. Mr. Duncan was appointed to the Commission by Governor Bond in 1973. Having served the Commission for the past six years, his term ended in December, 1979.



**Jack Curtis**

**JACK CURTIS**, Springfield, has been the Commission's Vice-Chairman for the past year. First appointed to the Commission by Governor Christopher Bond in 1973, his term of service ended in December of 1979. A graduate of Drury College in Springfield and the College of Law at the University of Missouri-Columbia, Mr. Curtis practices law in Springfield and is also a former member of the Missouri General Assembly.



# Funding Needs & Future Projections

The year 1979 was one of both windfalls and pitfalls for the State Highway Department. The economic situation caused problems for the Department just as it did for many businesses and individuals. The effects of the events of 1979 will be immediate and long range. But what is painfully clear is that something will have to be done to keep Missouri's highway systems at their present level of service, or the tremendous investment the state and its people have in its highway and transportation systems will begin to erode.

## Windfalls

The State Highway Department was fortunate in 1979 to have two things happen which injected additional funds into the road building and transportation programs. Through advanced planning, the Department was able to take advantage of an additional \$121 million in federal discretionary highway funds. Missouri was able to utilize this money because the Department had advanced many projects to the stage where the additional funding could be used. Unfortunately, this much federal discretionary money will not be available to Missouri in future years.

In November 1979, Missourians responded to the needs of the state, county and city highway departments by overwhelmingly passing an amendment to the state constitution which earmarked additional funds for road and transportation use. This amendment will become effective January 1, 1980 and provides for distribution of one-half of the current motor vehicle sales tax to the city, county and state highway departments. Additionally, the Department of Transportation will be merged with the Highway Department to form the Highway and Transportation Department, under the direction of a six-member Highway and Transportation Commission.

The amendment is expected to provide an additional \$18 to \$20 million for the Highway and Transportation Department in 1980.



## Trends

The positive benefits of these windfalls will be shortlived, because of a series of related events which will have a tremendous bearing on the highway and transportation programs in Missouri.

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Perhaps the most significant factor in the highway program has been the increasing cost of highway work. In 1979 construction cost rose more than 42 percent, which meant the Department was not able to do nearly as much work in 1979 as it was able to do in previous years. As a result, the normally scheduled August

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## 1979:

### A Year of Windfalls and Pitfalls

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The first of these occurrences was the decrease in income derived from Missouri's 7-cent-per-gallon motor fuel tax, the primary state source of highway revenues. Missouri's motor fuel tax is one of the lowest in the United States, although Missouri is responsible for the operation and maintenance of a 32,000 mile state highway system which is the seventh largest in the nation.

The mid-1979 fuel crisis affected the fuel consumption and driving habits of Missourians to the point that motor fuel tax revenue received in 1979 was 3.6 percent lower than the amount received in 1978. Although the Department recognizes the necessity for fuel conservation programs and has encouraged them through the establishment of commuter carpool lots and stringent energy conservation programs, the adverse effect lower fuel consumption has on Departmental revenues must also be recognized.

Income from the registration of motor vehicles is another source of highway funds, and although the 1979 income from these increased slightly over 1978, the average license fee per car decreased because people switched to smaller, more fuel efficient cars with less horsepower, and registration fees are based on horsepower.

Federal funds coming into the Department in 1979 amounted to less than 40 percent of the total highway revenue, however in fiscal year 1960, they amounted to more than 45 percent. This steady decrease underscores the effect lower fuel consumption is having nationwide.

construction bid letting was cancelled because anticipated revenues did not match the projects the Department planned to undertake.

Higher prices affected almost all items involved in highway work. These higher prices coupled with improved standards for highway design and lengthy, complicated procedures mandated by the federal government, have greatly increased the cost of a completed stretch of highway. Environmental considerations and concerns, although important, have been expensive and time-consuming. They have resulted in project delays which have increased the final cost of projects.

Additionally, not all of the revenue coming into the Highway Department is used on the state highway system, and this has resulted in more funds being channeled into other state agencies. In 1960, for instance, about \$7.5 million (or 3.9 percent of the total dollars spent) went to other agencies such as the Highway Patrol, the Department of Revenue, the Auditor's Office and the Office of Administration. In 1979, more than \$60.2 million (or 10.4 percent) went for the administration of these agencies.

## Needs

Obviously, the needs of the state highway and transportation system are many, and the economic



situation has done little to provide a pleasant outlook for the future.

Even though the travel in 1979 was 2.1 percent lower than 1978, total travel, when compared to the average over the past three years, showed a 4.4 percent increase. What this means to the state highway system is that although the income from traditional highway funding measures is decreasing, the use of the system is increasing. This indicates a need for more maintenance and improvement.

A 1979 study by the National Transportation Policy Study Commission indicated that travel on the nation's highway systems could increase by more than 80 percent by the year 2000. It has been estimated that Missouri would have to spend \$1.67 billion per year for the next ten years to correct deficiencies in the system pointed out in a 1972 study on the nation's roads, streets and highways. That cost is even higher now.

Construction program, however, the financial status of the Department will play a large part in determining how much work can be accomplished during the coming year.

## Future Plans

It will take a lot of money to keep the state highway system going at its present level, and unless some measures are taken to increase the fund flow into the Department, operations will be severely hampered.

If present economic trends continue, the Department will not be able to match all the federal funds available to it by 1984. If the economic situation should get worse, this time would come much sooner than 1984. Funds from the amendment allocating motor sales tax revenues

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## **During 1979, construction costs rose by more than 42 percent.**

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More than half of the 6,800 span-type bridges on the state highway system are structurally deficient or functionally obsolete and need to be repaired or replaced. Many bridges are presently carrying loads more than 200 percent in excess of what they were designed to carry. Others need major structural repairs and are marked with operational restrictions such as weight and speed limits.

Some of these bridges have been slated for improvement in the 1981 Right-of-Way and

to state, city and county highway departments will barely offset the effects of inflation. Passage of the amendment was a first step, but more will have to be done in the future.

The Department intends to make maximum use of all funds available to it in order to keep our highway programs operating at the level Missourians have come to expect.

The needs of the state highway system cannot be solved overnight, and the Department feels the people of the state need to know the problems facing the highway system.



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# Right-of-Way & Construction Plan

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Building lots of big highways mean formulating lots of big plans. Those highways don't just happen. The planning begins when the sections of the state highway system programmed for improvement are balanced against the Highway Department's continuing forecasts of incoming revenue. Out of that balance comes the Right-of-Way and Construction program. The State Highway Commission reviews and approves the program in the early part of each calendar year.

**B**ut time is the key word. Many federal procedural requirements involved in road building make it almost impossible to bring a highway project of any size from concept to contract in five years. This has been a real concern for Missouri as well as the rest of the nation. Seven or eight years is a much more realistic time frame if the project involved is a major one. There are area public hearings, environmental impact statements, air quality requirements, water quality requirements as well as historical, scenic and archaeological impacts to consider—and all of this takes time.

Because of the time concern, the Highway Department has in the past year, modified the structure and length of its Right-of-Way and Construction program. The newly revised program lists projects and their anticipated costs for the first year, a second year's worth of standby projects and five additional years of work in which money has been anticipated. Should a project in the first year fall by the wayside, one of the standby projects can be moved into the first year to replace it. Some overprogramming is done to compensate for those situations in which projects cannot be implemented.

Once the program is approved by the Highway Commission, the Department proceeds with a pre-location study meeting, during which suggestions are invited from interested citizens. After that meeting, the Highway Department proceeds with alternative location studies. Several

locations may be studied, and the results of these studies are presented to the public at another meeting—a location public hearing. If the project is relatively minor—the widening of a stretch of road, for example,—the Department will hold a combined location and design public hearing. Public reactions to the various locations are evaluated. This information is then used by the Department and Commission in determining the best alternative for the improvement.

With a location established, the Department proceeds with its design. Once the design reaches a certain development stage, a design public hearing is held. Open to all interested citizens, that meeting serves to get public comments on the design.

But on any big project, the Department holds a location hearing first, considers the comments made, and then holds a design hearing. Sometimes people's comments at public hearings result in the Department selecting an alternative to the first selection. Sometimes several changes are made. But eventually, the Department will arrive at a consensus recommendation or make modifications in its first recommendation, then taking that recommendation to the Commission for its consideration and approval.

**A**s can be seen, there is a great deal of public input into these open hearings. The details of the Highway Department's Right-of-Way and Construction program are open, too. Any citizen interested in learning how the program will affect his day-to-day life or entrepreneurial interests has easy access to the program at the Headquarters Office in Jefferson City or Highway Department District Offices.











## A Time to Conserve

Like 1974, 1979 will be remembered as the year of long gasoline pump lines, and lower-than-average home heating temperatures—in other words, the onset of a fuel shortage. During the wake of this national crisis, the Governor's spring mandate requiring all agencies to reduce fuel consumption by 10 percent accompanied the above scene.

And the Department responded with a program that greatly stepped up any previous efforts to conserve.

Management considered the Department's total fuel usage and found 86 percent of the fuel

was consumed by approximately 850 cars, 588 pickups and 2,100 trucks and tractors. Understandably, the spotlight was directed to vehicle usage cut-backs.

Within this area, mowing operations were focused on since they constituted 9 percent of the total fuel usage. A cut-back here meant a reduction in mowing frequency with as little reduction in services to the public as possible. By cutting mowing back by 25 percent, Department officials hoped to realize a 2 percent fuel savings. Reductions meant less shoulder, median, slope and interchange mowing. However, the reasons for mowing—safety, appearance and drainage—remain high priority.

Another 25 percent reduction was aimed at the maintenance resurfacing of Missouri's 22,000 mile supplementary road system. Over the years, these roads have built up an adequate aggregate base material from frequent resurfacing. Because of this, the Department felt a cut-back in resurfacing frequency of these roads would pose no problems and create a 1.8 percent fuel savings.

A major consumer of fuel—54 percent to be exact—are the snow and ice removal equipment. Knowing this, the Department directed a 3.1 percent reduction here. The Department felt such a reduction could be achieved with more efficient operations (by tightening up with men and equipment) rather than a reduction in services.

Department cars and trucks also consume a great deal of fuel. One way the Department decided to shave .6 of 1 percent in fuel consumption was to purchase compact new vehicles, when the need to replace a vehicle occurred. A push in this direction was started in 1973, and plans included a down-sized fleet of Department vehicles.

Focusing on the total equipment use, MSHD officials felt a 1.7 percent fuel savings could be attained by more efficient use of equipment. Vehicles were to be used only when necessary. Employees were to carpool if possible in Department vehicles.

Lastly, officials looked at management and scheduling. They thought .8 of 1 percent savings could be realized if employees pooled rides within



the district as well as main office. To promote this, the Department planned to set up scheduling boards so employees could schedule their trips. Others can then determine similar trip schedules and plan rides together.

As a check on whether the above conservation measures were working, the MSHD developed a computer program to monitor monthly fuel consumption of the districts and divisions. The program compared the current month's consumption with the consumption during the same month a year ago.

While the program was put into effect during 1979, and monthly monitorings have been studied, it will be impossible to tell whether the 10 percent reduction will be successful until the winter months are over. Most of the fuel expenditure occurs then.

But, from all indications, the program is doing exceedingly well in cut-backs. A study comparing the first six months of the program (July through December 1979) with the comparable six month period during 1978 illustrates this. Gasoline consumption for the six months in 1978 totaled 3,834,948 gallons. The same six months in 1979 totaled 3,354,966 gallons. What that means was a 12.52 percent decrease in 1979 in gasoline consumption in the Department's fleet of cars, pickups, trucks and tractors over 1978.

When looking at diesel consumption, an even greater savings was noticeable. During 1978, July through December figures show consumption to be 938,326 gallons. That decreased to 808,951 gallons in 1979, for an overall decrease of 13.79 percent.

The most dramatic decrease was apparent in December 1979. Gasoline consumption decreased 45.45 percent, while diesel consumption decreased 53.25 percent. Working with the Department to produce that kind of figure for December was "Mother Nature". An extremely mild winter during 1979 was experienced as compared to the snow-bound December of 1978.

But, the mandated fuel program isn't the only area a cut-back was noted. For several years, the Department has been trying to reduce energy consumption. By maintaining heating temperatures at 65 degrees and air conditioning at 78 degrees, energy consumed had been much less. A July through December report showed the British Thermal Units (BTUs) required to heat and light buildings had decreased 19.58 percent over the same period in 1978. Such energy resources included electricity, natural gas, fuel oil, propane, coal and wood.

While 1979 may be remembered for its shortages, it will also be remembered as a year the Department saved.





## **Amendment No. 2...**

# Vote of Confidence Boosts Department

What was the good news for 1979? Well, it came in the form of an amendment to Missouri's Constitution and provided additional funds for the Highway Department without a tax increase for Missouri's citizens.

With Missouri's highway needs outrunning financing ability during 1979, something was desperately needed to help "catch-up". Construction costs had risen 42.2 percent. The primary source of state highway revenue, the motor fuel tax, had decreased.

And something was done. A special November election to vote on a proposed Constitutional amendment was called. The proposal called for a change in highway funding patterns to earmark one-half of motor vehicle sales tax for highway and transportation uses. Of this half, the Highway Department would receive 74 percent, while counties would get 10 percent. Cities would receive 15 percent. The remaining one percent would go toward developing other transportation modes to benefit both urban and rural sectors of the state.

Additionally, the proposed amendment would streamline state government by merging the Department of Transportation into the Highway Department.

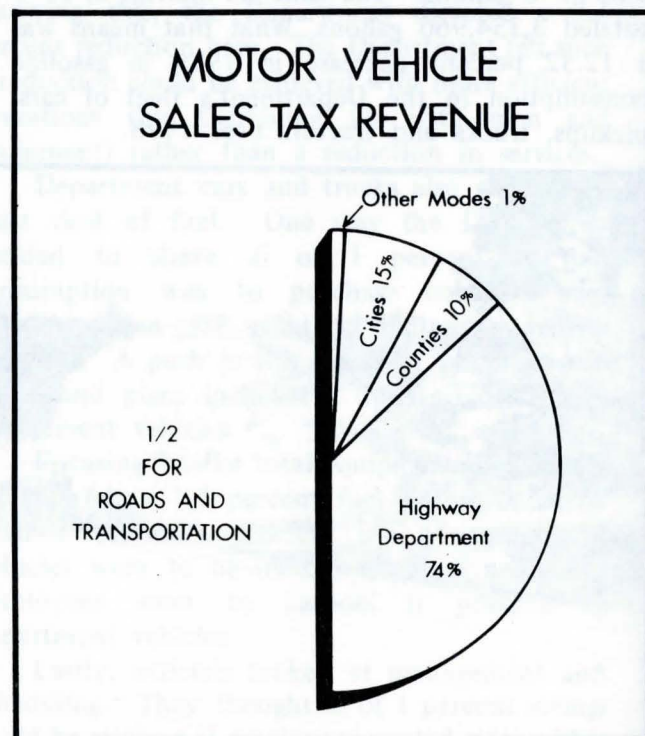
And the beauty of it all was it would be accomplished with no tax increase. Revenue would simply be reallocated. The move would be in line with the Missouri philosophy on gasoline tax: only those who use the highway system should have to pay for it. The sales tax from motor vehicles represented a user tax. Those who use the highway system pay for it. Those who don't use it, don't pay for it.

Apparently Missouri's citizens thought this was a good idea, too. By an overwhelming margin, they voted the proposal into law.

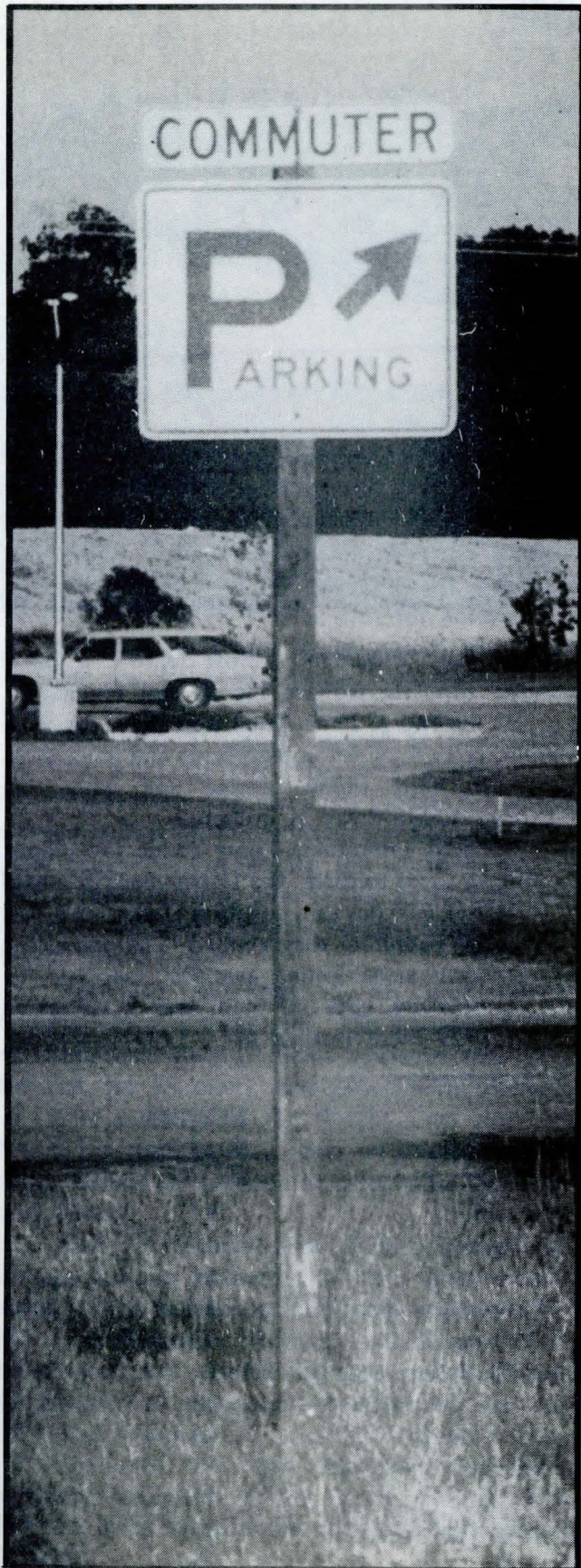
"Public awareness of and response to the needs of the state's highway and transportation systems was demonstrated," Chief Engineer Hunter says. "Many people worked long and hard to make our needs known and to ask for much needed help. The public responded quite favorably. They put their faith and confidence in us, and we do not intend to let them down," Hunter says.

"We will shoulder the added responsibility for all modes of transportation and make every effort to continue to provide the most efficient transportation system for Missouri within the limits of available funding."

The amendment becomes effective January 1, 1980. And then there will be a new face for a new decade—the Highway and Transportation Department.







## **Commuter Lots**

# More Spaces for More Savings

Saving the Department's money isn't the only thing on highway builder's minds—saving highway users money is important, too. That idea is clearly evidenced by the growth of commuter parking lots provided by the Highway Department during 1979.

Ten new lots were added to the already existing 35 statewide lots to allow commuters to park and ride with a friend—and save that expensive gasoline. Any many lots were expanded and updated. By the end of the year, 2,214 spaces were available, and an average of 1,744 spaces were being taken advantage of daily. That means the Department recorded a 79 percent usage of available parking spaces at the end of 1979.

Overall figures for 1979 indicate 70 percent of the available parking spaces were in use during 1979, while only 54 percent (880 out of 1,629 spaces) were in use during 1978.





The commuter parking lot program was initiated in 1973 in response to the energy crisis to reduce fuel consumption and to reduce the number of vehicles on highways during peak traffic periods. The Department also recognized that a significant number of commuters were parking near outlying interchanges and pooling rides to and from work to metropolitan area centers.

Commuter lots were constructed and maintained by state maintenance crews on departmental right-of-way. Lots are located predominately near metropolitan areas. They offer a centrally located parking area clear of existing

roadway and shoulders. Most feature a gravel surface, concrete parking blocks and fencing.

At the end of 1979, there were plans for more commuter parking lot construction and expansion. Lots are built where needed and when the necessary right-of-way is available.

To help commuters know where the closest commuter lot is to them, the Department prepared "Commuter Parking Lot Location Guide" this past year. The pamphlet diagrammed locations in the metropolitan areas, listing available spaces.

Specifically, the 10 new lots constructed during 1979 were located at:

<u>LOCATION</u>	<u>NUMBER SPACES</u>
Interstate 35 at Route 69 at Winston in Daviess County	37
Routes 71 and 291 at Harrisonville in Cass County	30
Routes 63 and AC at Columbia in Boone County	45
Interstate 44 at Route 19 at Cuba in Crawford County	35
Route 94 at Jung Station Road in St. Charles County	48
Interstate 55 and Route 61 in Crystal City in Jefferson County	48
Interstate 44 at Route 50 near Union in Franklin County	24
Interstate 55 at Route 32 near Ste. Genevieve in Ste. Genevieve County	47
Interstate 44 at Route 38 at Marshfield in Webster County	32
Route 13 at U in Bolivar in Polk County	25



## Rest Areas

# Two More Havens for the Weary

Weary motorists traveling Interstate 70 and Interstate 270 found two additional places to stretch, relax and refresh themselves last year. Two new rest areas were opened for the motoring public by the Department.

The first facility, opened March 19, is located on Interstate 270, one mile east of Missouri Route 231 (Telegraph Road) at Jefferson Barracks in south St. Louis County. So it is accessible to both eastbound and westbound traffic, it is situated on the north side of Interstate 270 with an interchange entrance off Koch Road.

Set in a wooded area, there are two restrooms—one at a parking area for automobiles and one at a truck and trailer parking area. The facilities are of Colonial design, constructed of tan brick.

The second facility opened in the fall of 1979. It is located two miles west of Wright City on Interstate 70. Sixteen acres provide the setting for the facility on the north side of the westbound lane, while offering parking for 22 trucks and 74 cars. On the south side of the eastbound lane, a 13.5 acre area provides parking space for 22 trucks and 48 cars.

Restroom buildings in the area feature contemporary architecture. The landscaped areas offer approximately 10 picnic tables per area. Park benches are scattered throughout both sections.

The opening of the Wright City rest area brings the total of such areas on Interstate 70 to four. Others are located near Concordia, Boonville and Mineola.

Both of the new areas were provided with certain features common to other Missouri rest stops. Such features include accommodations for the handicapped traveler, drinking water, telephones and electric lighting including night illumination to provide safe, comfortable rest stops 24 hours a day.

Features for the handicapped include specially designed ramps from parking lots, lowered drinking fountains and modified restroom facilities.

The rest areas are built-in safety features of the state's Interstate system. They invite the wayfarer to get out, stretch his legs and take a brief refresher before beginning his journey again. In addition, Highway Patrol officers check the areas frequently—another safety guard.

The opening of these rest areas bring the total of such areas to 20 along Missouri's various Interstates. In addition to the new constructions, the older, already existing facilities were being updated and expanded to include more features and accommodations.

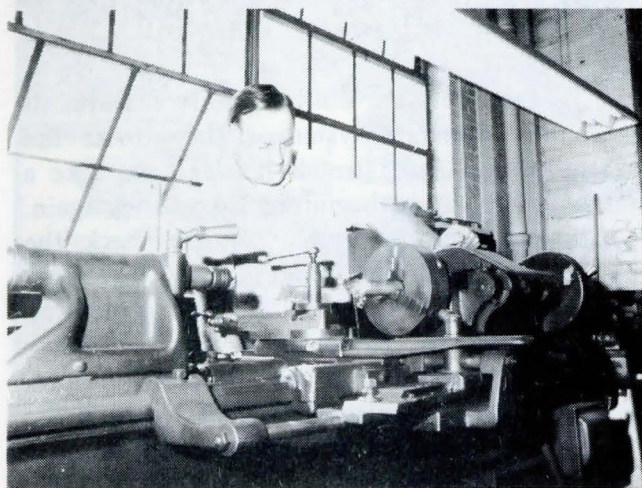
The rest areas were constructed on contract from the Highway Department and maintained by state maintenance crews with the public interest at heart.

"While the number of accidents prevented by the rest area concept cannot be determined, there is a definite safety factor involved," Chief Engineer Hunter says. "It is certain that the rested driver is a more alert driver."





# Winterizing Missouri...



**W**hile Department officials thought of new ways to stretch highway money, one tried and true method has still provided big savings in 1979 and deserves a spotlight. The Missouri Highway Department has been able to save more than half of what a new snowplow would cost commercially—and all because a certain group of men in the Headquarters Garage take raw steel and turn it into a snowplow to combat the worst snowstorm "old man winter" can dish out!

For years snowplows the Department have used to clear ice and snow from Missouri's highways have been made by employees at the Garage in Jefferson City. It has become a job that takes about 10 months and requires the services of seven or eight men.

The creation of a snowplow begins when the Districts send requisitions to the Maintenance and Traffic Division at the Main Office for the number of new snowplows they expect to need for the winter that is still almost a year away. This is usually done sometime in February. By March and April bids have been taken for the steel, and the shipments begin to arrive at the Garage.

By doing the designing and the building of snowplows, the Department is able to get exactly what is wanted. In addition, the plows can be made to operate any way desired. Hydraulic shiftable plows can be made which are more convenient to operate. They have carbide tip blades which wear longer. The Department now has a snowplow fleet of 1,700.

As for the cost to construct a snowplow from raw steel, it proves less than half the cost of a plow purchased commercially. In 1978, one plow cost an average of \$900 and the approximate cost

**ABOVE LEFT** - Much time is spent tapering the mounting pins which hold the snow plow on the truck.

**BOTTOM LEFT** - A bracket must be made for the hydraulic ram used to position the blade for a left or right-hand plow.



# Snow Plows to the Rescue

of a commercial plow in 1975 (the last time the Department purchased a commercial plow) was \$1,964.99. Though, like everything else these days, the cost of steel has gone up, and so the price tags on the Department cost. However, costs do vary between a 10-foot, and 12-foot plow.

The average life of a snowplow is 10 years, though that depends on the kind of snows Missouri gets. The Department put together approximately 70 for the 1979 winter to send across the state as needed.

But several months of hard work have proceeded the day snowplows arrive at their new homes. Once the amount of steel needed to build the plows has been determined, the bids have been let, the steel has been purchased and then delivered, the real work begins.

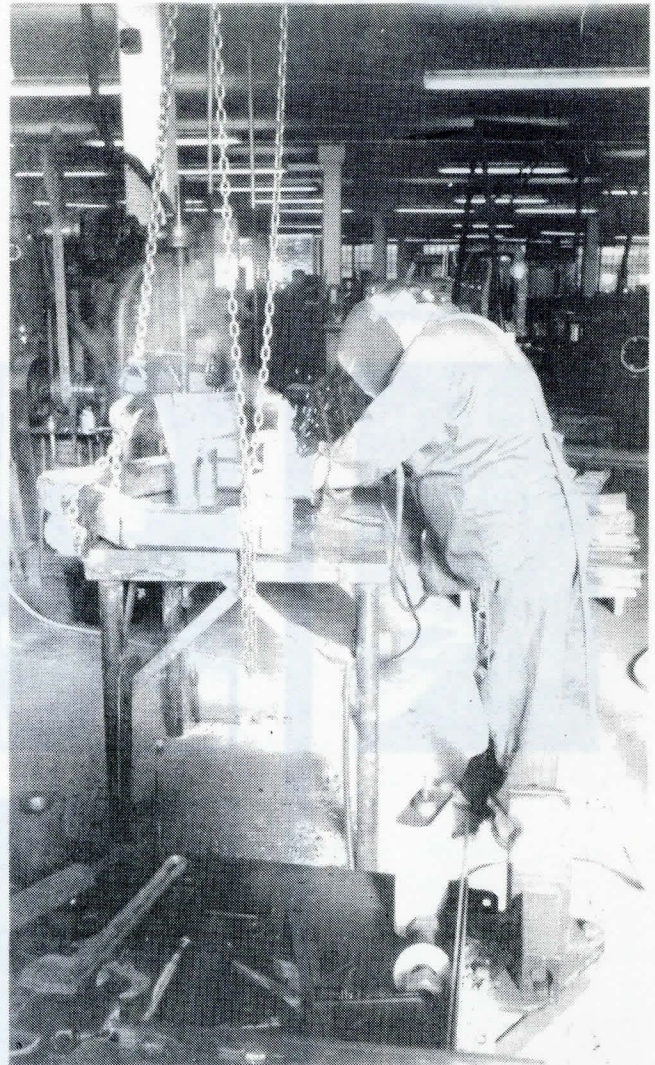
**T**he various pieces that are used in putting together a snowplow are cut out of the steel. It takes time and some elbow grease for such accomplishments. All the pieces in one stage of construction are cut out before proceeding to the next stage. Once the steel pieces have been cut, they are welded and assembled together. Though it involves only a few major steps, the creation of a snowplow is a slow and tedious process.

Once the plows arrive at the various Districts, they are painted "highway yellow" and are made ready for mounting. The Districts have also received the parts needed to mount the plow on the truck, so the final step remains in their hands.

So after the plows leave the Garage and move on to the Districts they are ready for the challenge of the ice and snow. And as always has been said about the U.S. Mail, through rain, sleet or snow, the snowplow will go!

**ABOVE RIGHT** - A pusher frame is welded together. That device pushes the mold board (blade).

**BELOW RIGHT** - The finished snow plow is mounted on a truck, ready to remove snow and ice from Missouri's highways.









# I-44

## Updated Road Provides Safe Bypass

Completion of an Interstate 44 bypass in Polk County during 1979 stopped up a major highway improvement to replace an outdated system of "left's flow", a dangerous approximately 90 degree highway curve.

The most recent project is located three miles east of Lake Wrayville, crossing the approximately 800' wide to the Mississippi River. The bypassment replaces the old, narrow and winding roadway (left's flow) with a two-lane, two-way divided highway.

State 44 bypassment to bypass the dangerous "left's flow" and installation of that bypassment began with the bypass completion.

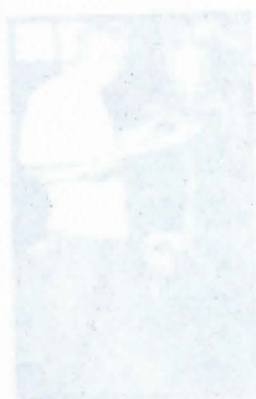
The project began in March 1975 and was finished December 1979. Improvements in the bypassment cost \$4,500,000 - a well justified expenditure when an number of lives could be saved.

The bypassment system is a small part of an 180 mile bypassment in St. Louis and surrounding area. The bypassment is a 1.2 mile stretch of modern bypassment to be finished on Interstate 44. The bypassment completion of a proposed bridge over the Mississippi River and permanent surface on other bypassment. The proposed completion date of 1981 is July.



## Interstate Progress





Interstate  
Progress



# I-44

## Updated Road Provides Safe Bypass

Completion of an Interstate 44 segment in Pulaski County during 1979 wrapped up a major highway improvement to replace an outdated bypass of "Devil's Elbow", a dangerous approximately 90 degree highway curve.

The newly-opened portion is located three miles east from Waynesville, running for approximately five miles to the Phelps-Pulaski County line. The improvement replaces the outdated, narrow and winding roadway (New Route 66) with a four-lane, two-way divided highway.

Route 66 formally sought to bypass the dangerous "Devil's Elbow" and completion of that particular segment made the bypass complete.

The project began in March 1976 and was finished September 1979. Improvements on the roadway cost \$9,902,000—a well justified expenditure when the number of lives it could save is considered.

The finished segment is a small part of an interstate originating in St. Louis and terminating in Oklahoma City, Oklahoma. It passes through such Missouri towns as Rolla, Lebanon, Springfield and Joplin. Only a 2.2 mile stretch of roadway remains to be finished on Interstate 44. That involves completion of a proposed bridge over the Roubidoux River and pavement sections on either side. The projected completion date of that is July 1981.

# I-470

## A "Fuel Stretching" Proposition

In keeping with the year's conservation emphasis, the Highway Department completed a "fuel stretching" project for Kansas City Route 50 and Interstate 435 motorists. A newly completed 5.7 mile segment of Interstate 470, running between Blue Ridge Blvd. and Route 50, now links Route 50 and Interstate 435. That eliminated a 14 mile triangle detour— and the gas it took to drive it.

Prior to the opening, traffic had to travel a north-south triangle through Raytown. But now, the frustration of added time and money no longer exists. With the new opening, traffic congestion is much relieved. Traffic now moves quickly and easily, running across the south part of the area between Lee's Summit and Lenexa, Kansas.

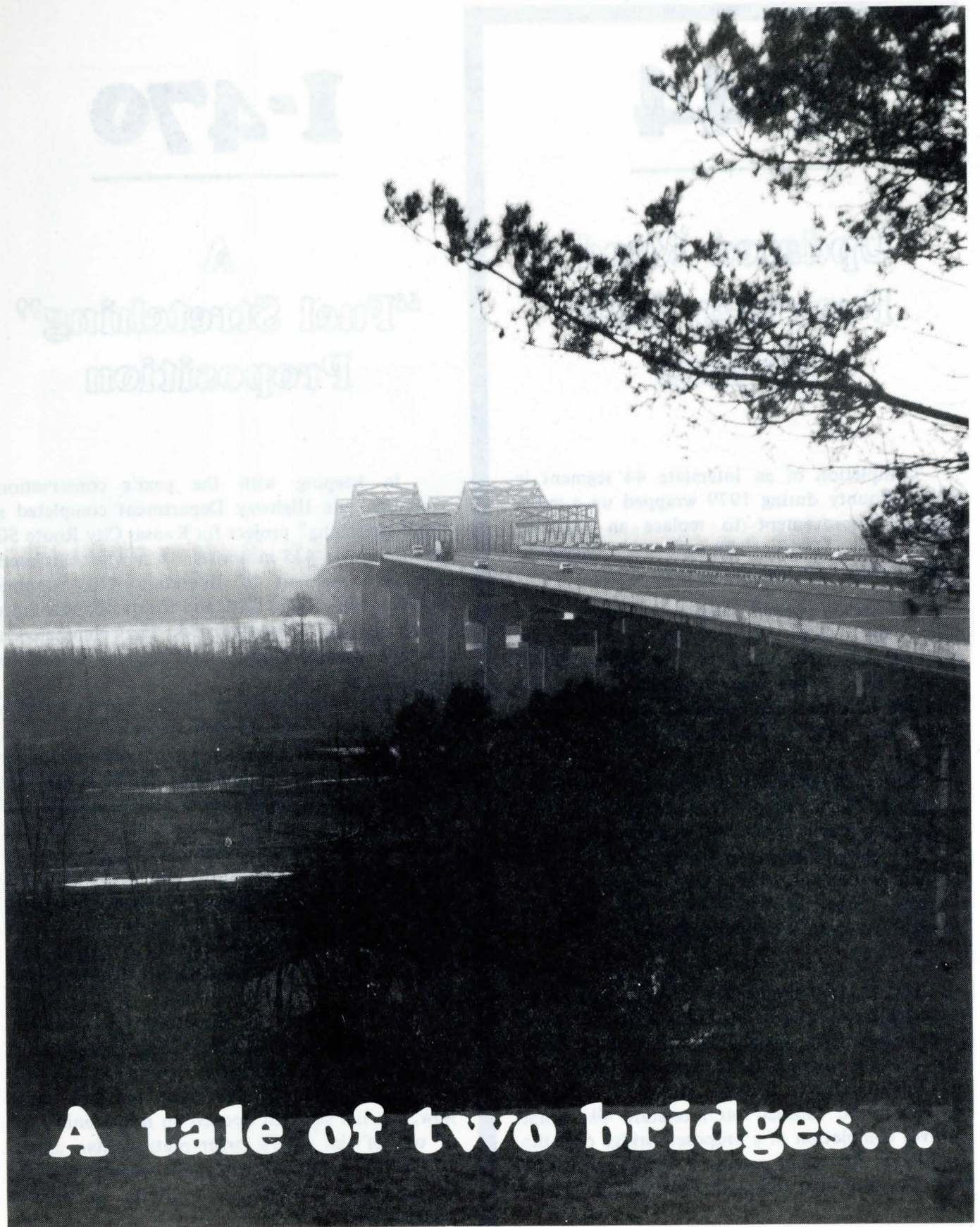
But what happened to old Route 50? It remained in use, of course, to service Raytown local traffic. The section of Route 50 in Lee's Summit, extending northwesterly to a point near Interstate 435, was redesignated as Missouri Route 350.

Work began on the four-lane, two-way Interstate stretch in October 1974. September of last year saw its completion.

Motorists might also enjoy the drive more now, for the segment opened up new scenic areas of one of the state's larger metropolitan areas.

What more could you want when you've got an Interstate stretch that's pretty as well as economical?





## **A tale of two bridges...**



# **I-70**

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## **It's Twins!**

On November 27, 1979, at 10:45 a.m., the Department had twins—twin bridges that is. And traffic on Interstate 70 over the Missouri River at St. Charles will never be the same again.

November 27 marked the completion of the rehabilitation of the old I-70 bridge. For a year, repair work involving replacement of the bridge deck with concrete filled steel grid had taken place. In the meantime, the adjacent new bridge, completed in November 1978, had carried east and westbound traffic.

Prior to the newer bridge construction, east and westbound traffic had been routed over the older bridge since 1957. Highway approaches were built at the older bridge in 1956 as the first project under the federal interstate highways program.

Chief Engineer Robert N. Hunter says some state officials questioned building a "four-lane bridge out in a cornfield." Not only did that bridge justify itself, but an additional bridge became necessary to add to the safety of the heavily traveled corridor as the northwestern part of the St. Louis area grew rapidly.

Today, the bridges are a unique part of Missouri's highway system. Never again, will there be the rush hour traffic jams so common when one bridge carried all traffic. Now each bridge

carries four lanes of traffic. The newer bridge sports eastbound traffic, while the remodeled bridge takes care of westbound travelers.

An accelerated contract helped speed progress on the twin bridge system and save taxpayers money (construction costs rise rapidly from year to year). Construction of the new bridge was completed nearly a year ahead of schedule. The early completion date of the \$32 million structure was possible through an agreement between the Department and I. E. Millstone Construction Company. Larger crews, working longer hours with more equipment speeded up the process.

As a result, rehabilitation of the old bridge was finished a year ahead of schedule. The work on the 4,083 foot span cost \$7,667,000. The I. E. Millstone Construction Company was also responsible for the renovation.

An opening ceremony celebrated the "birth" of the dual bridge system November 27. Government and highway officials beamed with pride as the dedication was held on the deck of the older bridge. The St. Charles Municipal Band struck up "His Honor", St. Charles Mayor Douglas Boschert clipped the ribbon at 10:45 a.m. and a motorcade led traffic across Missouri's twins for the first time.

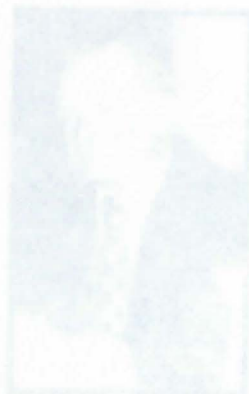
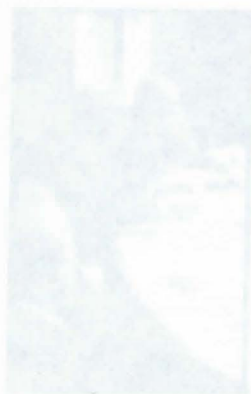












Achievements



## **Federal Funding**

# Budget Boost Aids Interstate Program

**W**hile the Department was feeling a pinch in the pocketbook in most ways, in one way it experienced a boost in the budget. Word reached Department officials in January 1979 that Missouri was one of four states to qualify for an initial disbursement from a new federal money pool available for Interstate highway work. By the end of 1979, Missouri had received \$125,998,917 from the new money pool for Interstate work—all because the state was ready, willing and able to take advantage of it.

The \$125,998,917 was made available under the terms of the Surface Transportation Assistance Act of 1978. Stipulations for the federal money included a first-come, first-served priority—and only states who have used up their regular Interstate apportionments needed apply. Further qualifications demanded that a state must be able to apply the money to a ready-to-start Interstate project, within 90 days of obligation.

"The bottom line for all this is a federal push to finish the Interstate program," James Roberts, Survey and Plans Division Engineer says. "This

pool rewarded states actively pursuing the Interstate program."

"The stipulation whereby states had to go to contract within 90 days after receiving the funds keeps states from receiving funds and then holding that money idle while other states could be making use of it," Roberts adds.

"We were able to obtain this money by having additional projects ready to go. We always plan additional projects for two reasons—they provide back-up should a project fall through and then they will also be there for the possibility of windfall funds such as these," Roberts concludes.

**T**he funds Missouri received were part of \$1.4 billion discretionary funds available nation-wide. Missouri received the third largest apportionment among the states. Only Florida and West Virginia came in ahead.

An initial disbursement in January funded six projects. By the end of the year, 70 projects were let as a result of the additional funding.

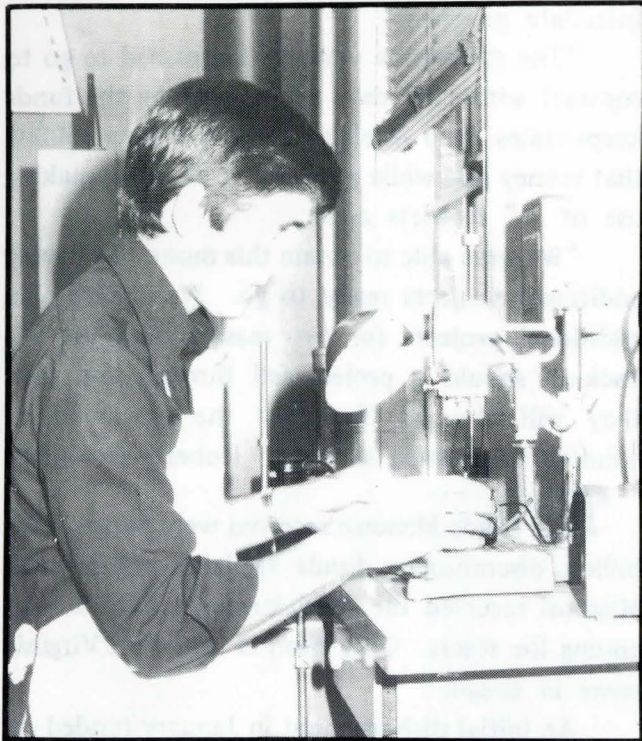
Chief Engineer Robert N. Hunter was particularly pleased that the Surface Transportation Act allowed states to utilize an Interstate money pool. He had worked hard for the creation of such a procedure when president of AASHTO.

"The fact that we were in position to utilize these funds reflects great credit on a lot of people who worked hard in the planning of tasks involved, the preparation of detailed plans for them and all other complex interrelated jobs involved in getting a construction project ready to go," Hunter says.

**"W**e have prided ourselves on the fact that we stay in constant readiness to make the most efficient utilization possible of any federal funds available. This disbursement is the most recent evidence that a policy of continuous readiness pays off for the highway users. I'm extremely proud of our performance," he continued.

The funding came at a good time for Missouri. "It was good to see money flowing in," Hunter concludes "rather than out."





A penetration test is one way of grading pavement asphalt.

**I**f the central Materials and Research laboratory in Jefferson City were a woman, it would rate a "10". As it is, it will suffice to say it would rate a "5" by the AASHTO Materials Reference Laboratory representatives. A "5" is the highest rating given by the representatives, as they could find no deficiencies or voice any criticisms of procedures and equipment performance during the August inspection.

"The report from AASHTO Laboratory representatives indicated superior effort and performance by our laboratory personnel, particularly since routine operation of the lab had to be maintained during the AMRL inspection," W. L. Trimm, Materials and Research Division Engineer says.

"The inspection was performed during the heavy part of the construction season. It is highly unlikely any lab could undergo as meticulous and thorough inspection of equipment and testing procedures as was provided by the AMRL without obtaining even one deficiency," he adds.

A meticulous and thorough inspection was right. Approximately 93 different physical tests for construction materials were made by lab personnel

## Super Lab...

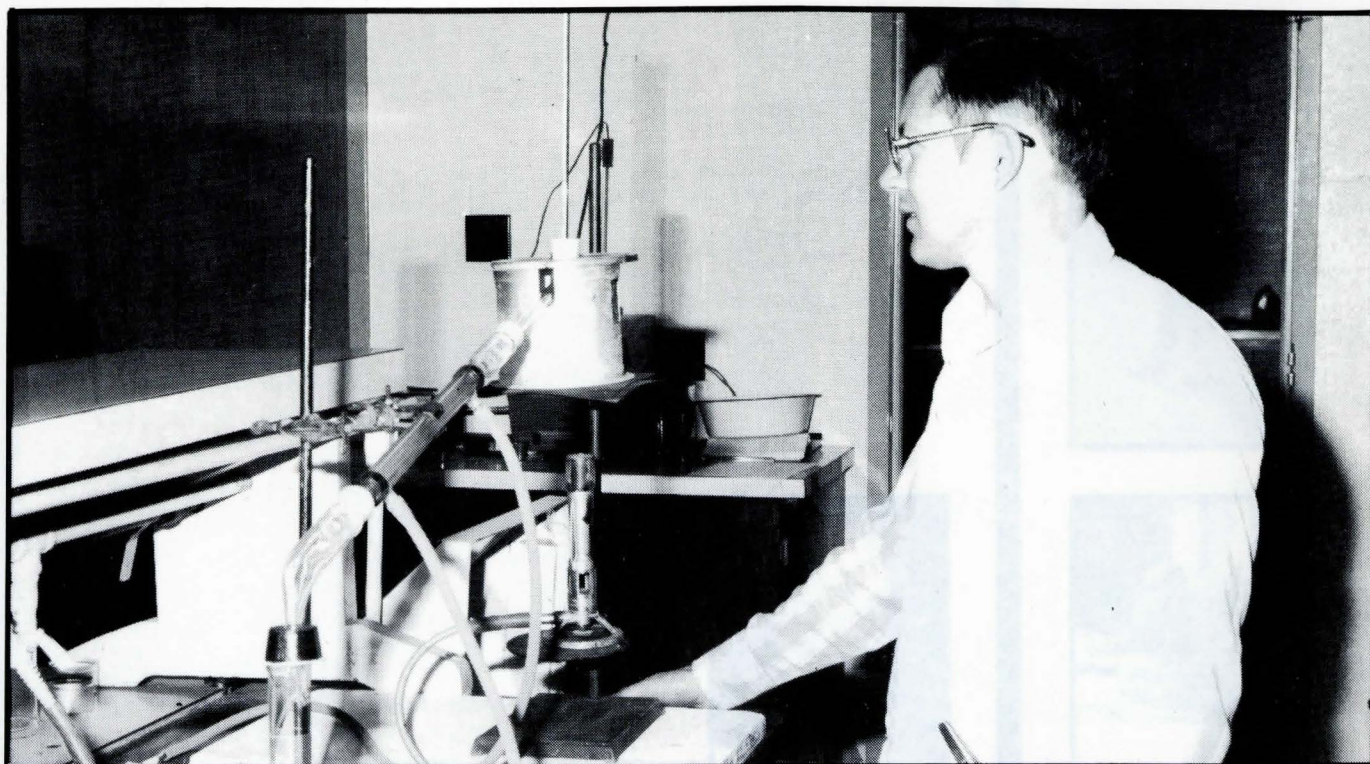
No  
Deficiencies,  
No  
Criticisms,  
No  
Sweat!

as AMRL representatives evaluated accuracy and proficiency. The representatives arrived one week before anticipated during a hectic time for the lab. Construction season was in full swing. But the surprise didn't undo the personnel, as they showed they didn't need a lot of preparation to pull off a superior rating.

The AMRL inspection is almost a yearly event for the lab, and is a service requested and paid for by the Highway Department. "By conducting the inspection, we assure ourselves that we are not out of line with the high standard work we want to maintain. If a deficiency shows up, we can correct it immediately to better ourselves," Trimm says.

**T**he AASHTO Materials Reference Laboratory was established by AASHTO on October 1, 1965. Until October 1, 1978, it operated as a National Bureau of Standards (NBS) program supported with funds from the State Highway and Transportation Departments and the Federal Highway Administration. On October 1, 1978, AMRL was converted to a National Bureau





A cutback distillation test measures liquid asphalt used by the maintenance forces to patch surfaces and recondition secondary roads.

of Standards Research Associate program, sponsored and funded by AASHTO.

**T**he principal functions of the AASHTO Materials and Reference Laboratory program were:

1. Inspection of apparatus and procedures used in the testing of aggregates, soils, bituminous material, bituminous mixtures, pipe, hydraulic cements, hydraulic cement concrete and metals.
2. Distribution of proficiency test samples.

A portion of the services provided by the AMRL covering the testing of reinforcing steel, cement and concrete is handled by the Cement and Concrete Reference Laboratory (CCRL). The CCRL is sponsored by the American Society of Testing and Materials (ASTM) and their service is paid for as part of AMRL. All other inspections and the distribution of samples for proficiency testing are handled directly by AMRL. The laboratory inspections are usually conducted every 18 months. The staff for these inspections consists of both National Bureau of Standards and AASHTO employees.

"The AMRL inspections began at the Lab in

1966," says Trimm, "and this was the first time we've received a 'no deficiency' rating, although we usually do well. Last year we had only one deficiency—one piece of equipment was slightly worn."

Proficiency checks were made on samples tested in the laboratory throughout the year. Samples of cement, soil, concrete, etc., were sent periodically to the Lab for testing. The lab reported its results to AMRL, located at the National Bureau of Standards in Washington, D.C. They then received "precision statements" showing how accurate methods are compared with other states. The comparison is made on a scale of zero to five.

**"A** rating of five is excellent, and that's usually where we fall," Trimm says. "We sometimes get a few fours. If an occasional three pops up, we start asking questions," he says.

"Needless to say, we're pretty happy about the inspection outcome," Trimm concludes.

The Department is happy, too. It's always nice to have a few "10s" around—oops, make that "5s".





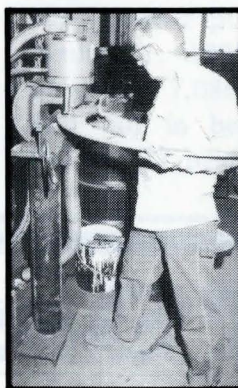
A patient in the hospital ward is being attended to by a nurse. The patient is lying down, and the nurse is standing over them, possibly checking their vital signs or providing medical care. The ward has a simple, functional design with a window in the background.

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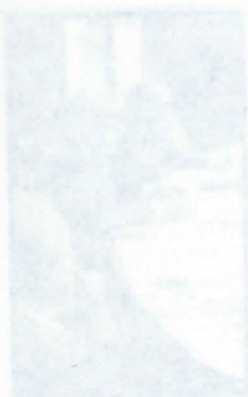
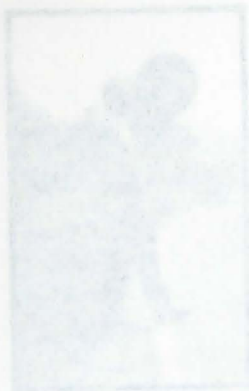
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# Divisions





Divisions



# Accounting

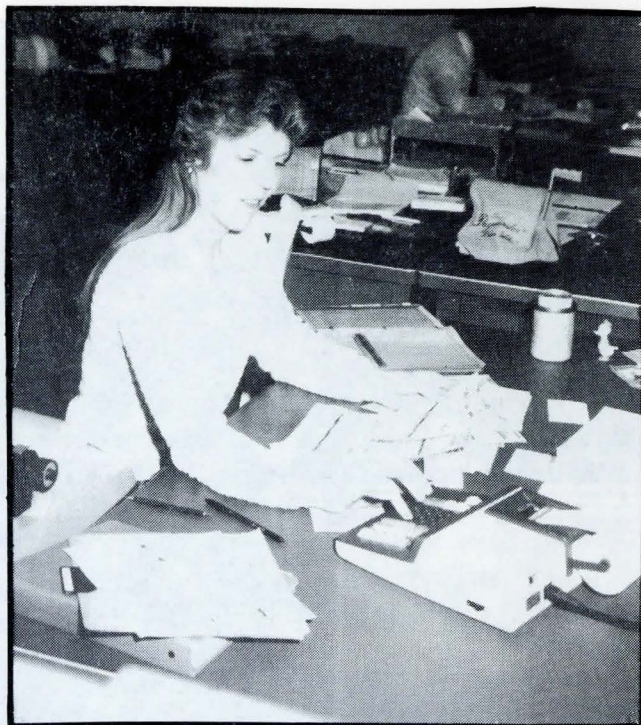
The accounting and expenditure control for the State Highway Department is the direct responsibility of the Accounting Division. All of the Department's records of financial transactions are processed and recorded by this Division.

Based on anticipated revenues and disbursements, the Division prepared legislative budget requests as well as annual internal budgets during 1979.

The Division reviewed all payment documents for accuracy, priority of payment and to determine if funds were available prior to recording and certification for payment.

The Division processed 186,964 checks during 1979, which represents disbursement of \$506,518,066.31. Disbursements through gas tax refunds and other state departments from highway funds equaled \$69,159,999.48. Total disbursements from highway funds for 1979 equaled \$575,678,065.79.

Payments for Workmen's Compensation and medical care were made by the Department's insurance carrier; however, these payments were routed through the Accounting Division and recorded to insure absolute accuracy of fiscal records. There were 780 Workmen's Compensation cases processed this year.



The Accounting Division was responsible for administering the regulations and policies of the Highway Employees and Highway Patrol Medical and Life Insurance Plan. As of December 1979 there were 8,926 health insurance plans and 8,203 life insurance plans in force. For the period from January 1, 1979, through December 31, 1979, there were 7,086 health claims with \$5,188,908.25 paid out in benefits and 22 life claims with \$95,386.27 paid to survivors in benefits.

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# Maintenance & Traffic

During 1979, the total roadway mileage maintained by the Division increased 39 miles to a total of 33,822 miles. This mileage included recreational access roads, outer roadways, service roads and maintenance agreement sections.

We continued our objective to end road mixing on all routes with an average daily traffic exceeding 500 on all numbered routes with an ADT over 225. This objective has been accomplished by use of our contract leveling course, contract seal coat and contract premix

programs, and off road stockpile site mixing with either motorgraders or pugmills.

The contract leveling course program has proved to be an excellent way of meeting the off road mixing objective. A contract leveled course is basically a one-inch hot mix machine-laid surface. To have been eligible for inclusion in this program, a road must have carried over 500 ADT, been a bituminous surface route without a constructed base and had a build up of 2 or 3 inches of mat. Exceptions to this criteria were





made if they provided continuity to the machine-laid system or constituted short stubs into or through towns. At the end of 1979, approximately 6,750 miles of roads were eligible for inclusion in this program. In 1979, 601.0 miles or 8.9 percent of the eligible mileage was resurfaced under this program. This is a decrease of 322.4 miles from the 1978 program.

During 1979, in addition to the 601 miles of contract leveling course, we also completed 238.8 miles of seal coat, 895.4 miles of premix and 310.6 miles of stockpile mixing. That totals 2,234.4 miles of off road mixing. This comprises 36 percent of our 1979 maintenance surface treatment program. This is a reduction of 580.9 miles in our off road program. Our total maintenance surface treatment program was reduced by 581.2 miles in 1979.

Another major objective has been the reduction of cutback asphalt usage to conserve energy. During 1979, the price of emulsified asphalt was significantly cheaper compared to

cutback asphalt and ended the season approximately 6 cents per gallon cheaper than the corresponding cutback asphalt.

In 1978, we used 28 million gallons of emulsified asphalt or approximately 47 percent of our total asphalt usage. In 1979, we used 30 million gallons of emulsified asphalt which represents 53 percent of our total asphalt usage.

We used approximately 5,600,000 gallons less asphalt in 1979 than we did in 1978. This is primarily due to the cutback in our continuous bituminous programs.

In 1979, we used approximately 53,200,000 gallons of asphalt and 1,948,000 cubic yards of aggregate. Other major maintenance items included mowing approximately 380,000 acres of right-of-way and the expenditure of \$1,005,140 on litter pickup.

The Maintenance Division continued to meet its objective to provide chemical storage buildings for all sub-areas where calcium and sodium chloride is used. During 1979, we constructed



chemical storage buildings at 44 additional locations. With the completion of these additional buildings, we have provided 78 percent of our Maintenance sub-areas with chemical storage buildings.

Due to the shortage of available finances, our building construction program was severely curtailed. We completed the construction of two concrete block buildings. We also carried on, but at a more conservative level, our program to insulate and partition maintenance buildings to conserve energy.

The Department, in an effort to conserve energy, has been building pool parking areas in and adjacent to the metropolitan areas. This program was started in 1975 with the original construction of 717 spaces. Since the original construction, we have added 1,497 parking spaces by the construction of new areas and expansion of existing areas. In December 1979 we had 2,214 spaces of which 427 were built in 1979 or an increase of 24 percent. Also the average daily usage in the last quarter of 1979 increased from 956 to 1,744. In 1975, we had an average usage of 42 percent of available spaces. This was increased to 79 percent in the last quarter of 1979.

The winter of 1978 to 1979 was more severe than the previous winter and in our snow removal operations we used 133,029 tons of chemicals. This was approximately the same tonnage as used the previous winter. However, the storms during 1978 to 1979 winter required considerably more effort in plowing. This resulted in a higher cost. Our total cost increased from \$17,882,537 to \$22,263,637, or an increase in expenditures of 25 percent to provide safe surfaces for traffic to use during and immediately after ice and snow storms.

Division personnel made routine inspections of all state maintained bridges to determine their condition and needed repairs. These inspections included over 6,400 bridges on the state highway system. Thirty-five were Missouri or Mississippi River crossings, 19 of which were jointly maintained by the adjacent states. Six special condition inspections were performed so that the loading capacity could be determined. Three divisional inspections were conducted on 75 interstate bridge structures in Districts 4, 5 and 6.

Division repair crews completed structural repairs to 86 bridges. This included the

strengthening of one structure that had deficient load carrying capacity. Two structures were also repaired or replaced because of major collision damage.

Division paint crews completed the painting of 108 bridges during the year. This amounted to painting approximately 3,900 tons of structural steel.

In the early 1960s the Maintenance Division started an objective of treating all new bridge floors with a mixture of 50 percent linseed oil and 50 percent mineral spirits to protect the bridge floors from chloride damage. The initial treatment is performed by the contractor upon completion of the bridge. The bridge floor is then treated annually by maintenance forces until they have received five consecutive treatments. In 1979, 222, or 3.5 percent, of the bridges in the highway system were treated.

The Department is now maintaining 19 rest areas on the Interstate system. Two new facilities, one in Warren County and the other located near the Jefferson Barracks Bridge in St. Louis County were placed in operation in 1979.

To reestablish or improve vegetation on right-of-way, contracts were let to fertilize approximately 3,410 acres during 1979. To control Johnson grass, the Department let contracts for spraying 5,780 acres. In addition, 3,610 acres were sprayed by maintenance forces. The majority of the spraying was done in counties which have adopted the Johnson grass law which requires the Highway Department to control Johnson grass on the Department's right-of-way.

There were 96,293 overdimension, overweight, and overdimension/and overweight special permits issued during 1979. Of this total, 28,969 or 30 percent were issued by the 10 District Offices. Included in the total were 1,575 permits issued to governmental agencies or subdivisions without fees.

The Sign Reclamation Plant continued as one of the major money saving accomplishments of the Division during the past year. This plant was placed into operation in September 1977. Two-thirds of the metal signs provided to the districts were reclaimed signs from our Sign Reclamation Plant. During 1979, we reclaimed 44,400 signs totaling 199,000 square feet. Through the operation of this plant, we were able



to realize a savings of 94 cents per square foot for every sign provided the districts. The savings to the state through this operation during the calendar year 1979 amounted to approximately \$187,000.

In a continual operation to safely mark all state highways carrying over 225 ADT, we either striped a centerline on the lower volume roads or striped a centerline along with no passing zones on higher volume routes. In 1979, we placed a total of 71,900 miles of stripes. This total included 39,100 miles of centerline and laneline, 22,000 miles of edgeline and 10,800 miles of no passing zone. To complete this work, approximately 485,812 gallons of paint and 2,523,035 pounds of reflectorized glass beads were used.

During 1979, 63,209 accidents which occurred on the state highway system were coded and placed in the accident data record system. These reports were provided by the State Highway Patrol and approximately 500 city and county law enforcement agencies.

Speed studies were conducted at 130 locations and traffic volume counts were made at 200 locations.

We continued our 120/Medium Improvement Program in 1979. Fifty-five locations were investigated where a higher than normal number of accidents had occurred. At 43 of these locations corrective measures were implemented.

We investigated 104 locations and countermeasures were evaluated for possible funding under Section 209 of the 1973 Federal Highway Act. Fifteen of these locations have been tentatively programmed for improvement on the right-of-way and construction program.

There were 814 billboards removed by property owners and 227 removed by state forces under the Outdoor Advertising Laws and Regulations.

Activities funded from 402 Program Funds under the 3+ standards of the Missouri Highway Safety Program as coordinated by the State Highway Department are as follows:

- \* The Traffic Engineering Assistance Program. This program was established to aid political sub-divisions with traffic engineering problems where a comprehensive view is required and where the subdivision does not have personnel available to carry out the

review. These services were performed by consultants retained by the Commission for this purpose. Because of a cutback in funds available for this program, only 25 studies were conducted in 20 political subdivisions. The average cost increased \$540 each from 1978 to an average cost of \$2,240 per study.

- \* Bridge Engineering Assistance Program. This program was established to aid political subdivisions in obtaining information on the structural adequacy of bridges under their jurisdiction. These services were performed by two consultants retained by the Commission on a yearly contract and several other consultants retained on a cost per bridge basis. These services included, in addition to determining structural adequacy, the inventory of off-system bridges. This also included establishing posted weight limits and priorities for repairs or replacement of bridges. Structural adequacy reports and inventories were conducted on approximately 1,700 bridges during the year, costing a total of \$392,228.

- \* Other activities included the completion and distribution of the Condensed Traffic Principles Handbook for Small Cities. The handbook was distributed to all county governments and those cities with a population of over 250. Numerous other requests for the handbook have been received, including the Federal Highway Administration, U.S. Department of Transportation, Missouri Division of Highway Safety, State Highway Departments, Planning Commissions and other agencies.

- \* The 30th Annual Traffic Conference was held as part of the seminars and short course portions of our annual work program. Sixty-seven participants from various counties, city, state and federal governments attended the conference which dealt with solutions to traffic problems for cities and counties.

- \* As a continued maintenance operation, replacement parts for existing impact attenuator installations in the St. Joseph, Kansas City, and St. Louis areas were purchased with 402 funds. There was \$47,632.10 spent in 1979 for the purchasing of these replacement parts. 1979 is the last



year in which 402 funds will be used for purchasing impact attenuator replacement parts.

The program of systematic monitoring of peak period freeway traffic operations in the St. Louis and Kansas City metropolitan areas was continued during 1979. This surveillance program provided information on the location and severity of traffic congestion on approximately 170 miles of the system.

Congested sections received additional study. The most critically congested sections were

subjected to detailed studies to determine the cause, or causes, of congestion and to evaluate alternatives for improvement of the freeway operations.

As a result of the surveillance program and studies which followed, freeway operational changes to improve traffic flow and increase safety have been incorporated in both St. Louis and Kansas City. In St. Louis, the Delmar Street on-ramp to I-70 eastbound was closed and the access to the reversible lanes of I-70 at West Florissant were closed. In Kansas City, the Troost





Street on-ramp to I-70 eastbound and the Benton Street on-ramp to I-70 eastbound were closed and the Paseo on-ramp to I-70 westbound was redesigned to improve safety and traffic flow.

Traffic volume trends were monitored to determine if the peak hour traffic had reduced in a similar manner to the 24-hour traffic. It was found the peak hour volumes in 1979 have changed little from the 1978 volumes.

To provide relief to traffic congestion at various intersections throughout the state that were not included in right-of-way and construction programs, maintenance contracts were let for signal installation at six intersections. In addition, 11 intersections were signalized by Maintenance forces. To update existing new traffic signals throughout the state, Maintenance forces upgraded or installed new traffic control equipment in nine signalized installations. A permit was issued for the installation of traffic signals at one intersection. The program to interconnect various traffic signals for traffic progressions was continued.

During 1979, a team of Department officials was assigned the task of reviewing management, budgeting and training procedures to see if changes could be made to improve maintenance management. The team reviewed literature on the subject, as well as techniques used by various states with highway systems somewhat comparable to ours. While in general they found our present procedures to be adequate, they determined that several steps could be taken to supplement our present system. These steps included taking inventory of the main physical features the Division maintains, developing a work program based on these features and showing the units of work to be accomplished. Training material, included suggested production standards, will be developed based on the most efficient and economical method of work procedures. Work accomplished will be reported and future budgets developed using the cost per unit of work for the estimated units of work to be done. Approximately two years will be needed to develop and implement the recommended changes.

## Bridge

This Division is responsible for the design of all bridge structures on the state highway system.

During the year, 93 designs were completed by this Division. Of this number, 74 were designed for major system routes with 19 to be built on supplementary routes.

The total length of all new structures contracted for during the 1979 calendar year amounted to 46,974 feet costing \$88,949,346. Of these amounts, 3,552 feet costing \$5,201,451 were designed for supplementary routes.

Included in the above statistics were designs for portions of two large structures. A contract was let to build the substructure piers for a new 1,718 foot, Route 36 Missouri River Bridge at St. Joseph at a contract price of \$8,283,787. Also included were two contracts to complete the Route 67 Missouri River Bridge at St. Charles. One contract will construct four units of plate girders, a length of 2,783 feet costing \$11,640,607. The remaining contract will construct a concrete deck,



install lighting and paint the structural steel on the plate girder units costing \$6,644,986.

In addition to the above, 40 designs were prepared for repairing, widening or extending 11,837 feet of existing structures by contract costing \$13,801,559.

This Division assisted in the inventory and inspection of Off-System or County/Municipally owned bridges as part of the Federal Highway Administration Bridge Replacement and Rehabilitation Program.

The program of rating all bridges on the state highway system continued in this Division. Bridge structures were rated by computer to determine the safe loading capacity.



# Equipment & Procurement

This Division is responsible for procuring and maintaining a fleet of equipment that efficiently and effectively permits the Department to function. At the close of 1979, the Division was maintaining 6,352 rental units consisting of passenger cars, trucks, carryalls, tractors, mowers, motorgraders, and various miscellaneous units.

The Division developed a method of defining equipment downtime in a continuing effort to more efficiently manage the fleet. The new program was implemented in one additional District for evaluation purposes and should be ready for implementation statewide by July 1, 1980.

The Division initiated a program to evaluate the new generation synthetic oils. This was done in effort to reduce oil consumption through extended drain intervals and gasoline consumption by increasing miles per gallon.

A program for monitoring fuel usage was developed and is supplied monthly to all Districts

and Divisions. It provided information and guidance to reach the Department's energy usage reduction goals.

8,307,302 gallons of gasoline, 271,307 gallons of kerosene, and 2,140,603 gallons of diesel fuel were required to operate the fleet. In addition, 11,960 gallons of anti-freeze, 111,669 gallons of lubricating oil, 44,827 gallons of hydraulic oil, and 113,344 pounds of multi-purpose gear oil and lithium grease were used. Tires and tubes costing \$688,580.40, tire chains costing \$259,222.69, and shop equipment, parts and supplies totaling \$5,023,384.92 were contracted during the year.

The Headquarters Sign Shop produced a total of 92,094 signs and markers of various shapes and sizes amounting to \$985,496.45 during the year.

Equipment and Procurement was also charged with the responsibility of providing all tools, supplies and materials required to operate the Department. The quantities of various materials purchased for highway system maintenance are listed below:

*Various Types of Asphalt*  
*Gravel*  
*Stone and Chat*  
*Paint*  
*Reflectorizing Spheres*  
*Sodium Chloride (Winter 1978-79)*  
*Calcium Chloride (Winter 1978-79)*  
*Treated Sign Posts*  
*Steel Sign Posts*  
*Grader and Maintainer Blades*  
*Agricultural Seed*  
*Mower Parts*

56,448,866 gallons  
 1,059,600 cubic yards  
 1,201,500 tons  
 569,789 gallons  
 2,667,600 pounds  
 125,227 tons  
 7,804 tons  
 55,000 each  
 39,936 each  
 1,709,907 pounds  
 32,025 pounds  
 \$408,478.51





# Personnel

The Personnel Division is an administrative unit of the Department, providing assistance to the Headquarters Divisions and the ten Districts. Assistance is rendered in such areas of personnel management as employment, affirmative action, employee development and training, employee relations, wage and salary administration and application of personnel policies.

During 1979, the Personnel Division representatives again conducted a campus recruiting program, visiting accredited civil engineering colleges in Missouri to secure graduate engineers. Increasing demand and rapidly rising salaries for engineers continued to pose difficulties in recruiting needed replacements. The Department employed ten new graduate engineers through campus recruiting and nine graduates through other sources.

Recruiting qualified applicants to staff other job openings in Headquarters Divisions also posed difficulties in some areas where certain skills are in short supply.

The Missouri State Highway Department is an Equal Opportunity Employer. Affirmative Action Programs remained a high priority throughout the Department and significant progress continued. Recruiting efforts by both Personnel Division and District personnel were intensified to locate qualified minorities, including female and other protected group applicants, for job opportunities. During the year, 133 additional minorities were employed throughout the state. Minority separations partially offset minority employments; however, the Department's overall goal appears to be attainable.

Orientation and training of new employees was primarily conducted through the Department's supervisory personnel. The Personnel Division provided each new employee with several publications to familiarize them with the Department's functions, working rules, regulations and employee benefits.

Employees, in obtaining the fundamental knowledge of their job, may have become eligible to attend training conferences and seminars related to their specific work assignments. Most technical



skills training is provided by operational Division staff. The Personnel Division supplemented employee training by structuring and coordinating an on-campus supervisory skills seminar. The seminar was held for designated supervisory levels and instructed by the University of Missouri faculty. The seminar was tailored for application of supervisory principles to the policies and needs of the Highway Department. The seminar included emphasis regarding the supervisor's role in administering a successful affirmative action program.

The Highway Department operated, in conjunction with the University of Missouri, a "Co-Operative Civil Engineer Training Program". The program was coordinated by the Personnel Division. This work-academic program was designed to provide promising civil engineering students with highway technical experience, while alternating work phases with periods of attendance at the University of Missouri at Columbia, Rolla or Kansas City. Kansas City was added in 1979. Students graduating from this program have



acquired actual experience in all phases of highway engineering, and become productive with a minimum amount of orientation and training. At the end of the year, 14 students were participating in this program. The Co-Op Program is also beneficial when campus recruiting becomes difficult.

Internal training programs, conducted by Department staff, were held as specific needs indicate. For example, Maintenance and Traffic Division personnel conducted training sessions in 1979 for Maintenance Supervisors in updating our snow and ice control program and signal seminars.

The Department continued to seek better ways to maximize utilization and development of its human resources, minimize costly employee turnover, while maintaining a work environment conducive to high employee morale and motivation. The Personnel Division participated in numerous projects toward this end.

All personnel transactions were monitored to ensure equitable salary and policy administration. Employees were treated with fairness and the highest degree of uniformity. Several job evaluations were conducted by the Personnel Division to maintain both accurate job specifications and internal salary equity between Department jobs.

The Highway Department made every effort to maintain an adequate salary structure and employee benefits program, subject to budgetary limitations. The Personnel Division provided assistance through conducting surveys and formulating recommendations. The Personnel Division continued to conduct a review of prior wage service credit awarded employees toward retirement to determine equity under the present retirement statutes.

Improvements were made in the centralized personnel records through further data processing applications. The improvements will result in more rapid recovery of the personnel data required for increasing State and Federal reports, with a reduction in time spent on manual compilation of data. A program to implement Unemployment Insurance coverage for Department employees also continued.

Numerous reports and special studies were compiled by the Personnel Division during the year as needed by Department staff to analyze effective utilization of Department employees and the progress of various programs.

The Department had 6,519 salaried employees on December 31, 1979, compared to 6,604 on December 31, 1978. Approximately 600 temporary employees were hired during the summer to supplement the permanent staff on seasonal work. A large number were engineering students. Temporary employees were hired as needed for emergency work such as road maintenance during snow storms. The number of salaried employees has declined through attrition since 1971, when the number was 6,927.

During the year, 153 employees were approved for retirement from the Department, of which 16 were between ages 55-60 with 15 or more years' service, 84 were between ages 60-65 with 15 or more years' service, 20 were between ages 65-70, and 33 qualified for disability benefits. Early retirement, prior to age 65, continued to be the trend. The Highway Employees' and Highway Patrol Retirement System had 1,737 Highway Department retirees. The Department monitored pension system trends to evaluate what improvements in Retirement System benefits were feasible while maintaining actuarial soundness.

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## EQUAL EMPLOYMENT OPPORTUNITY (TITLE VI)

### MINORITY BUSINESS ENTERPRISES

As part of its overall Affirmative Action Program, the Missouri State Highway Department is committed, under Title VI, to encourage, develop and implement programs assuring Minority Business Enterprises are afforded every opportunity to participate in state and

federally-assisted programs, as contractors, consultants and suppliers. A Minority Business Enterprise is a business of which at least 50 percent is owned by minority group members.

One problem for minority contractors has been the requirement of becoming "prequalified"



in order to perform federal-aid work. The Highway Department did not require "prequalification" for contractors to bid on highway construction projects. Prime contractors, however, are required to file with the Missouri State Highway Commission a valid contractors questionnaire. The questionnaire shows all of the assets and liabilities of the individual, partnership or corporation. Subcontractors are not required to have a valid contractors questionnaire on file.

The Highway Department made an effort to reduce selected contract sizes to provide more entry opportunities for smaller, less experienced minority firms. The Department allowed joint ventures by minority firms to provide more entry opportunities.

The Department distributed an updated list of Missouri and surrounding area minority-owned businesses. It is categorized by area of expertise, location and specific product or services to all contractors qualified to bid on work and to political subdivision having initiated FAU projects. The list encouraged the businesses to use the minority firms when possible.

Bidders on construction projects in Missouri were required to certify whether they intended to subcontract a portion of the work. If so, the bidders are obligated to take affirmative action in attempting to utilize minority firms on the intended subcontracted portions.

The Department worked with and through minority agencies and contractor associations in an effort to increase minority participation on state highway construction projects. Copies of news releases advertising lettings were sent to minority newspapers as well as associations for minority contractors.

Through its affirmative efforts, \$4,450,214.93 in federal-aid contracts and subcontracts were awarded to minority firms by the State Highway Department during calendar year 1979. This is a significant increase over last years' awards of \$2,252,829, which were a record high.

The Highway Department will continue its efforts to further minority business participation in state and federally-assisted programs.

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## **Materials & Research**

The Division of Materials and Research is responsible for the inspection and approval of all materials used in maintenance and construction of the Missouri state highway system. In addition, the Division conducts highway research to change materials, design and procedures that will result in improved performance or a cost reduction. This is done while maintaining the desired high quality of highway maintenance and construction.

Field inspection of materials was conducted during 1979 by personnel assigned to the 10 district offices. Examples to illustrate approximate material quantities inspected are: 8.7 million tons of crushed stone, sand, gravel and other aggregates; 100 million gallons of bituminous materials such as asphalt cement and emulsified asphalt; 19,000 tons of reinforcing steel for concrete and 219,000 linear feet of drainage pipe. In addition, the Division designed all bituminous mixtures used

throughout the state. It also provided technical assistance and advice to the ten districts regarding materials inspection.

The central laboratory is located in Jefferson City. All materials requiring specialized testing which cannot be performed in the field were shipped to the central laboratory. But, many of the tests performed in the field were also performed in the central laboratory. This was done to insure field testing procedures were uniform and fair throughout the state.

The central laboratory received periodic inspections and was nationally recognized and approved for testing highway materials. Approximately 35,500 samples were tested in 1979.

The research performed by the Division included proposed methods to accelerate testing to improve efficiency in materials inspection and

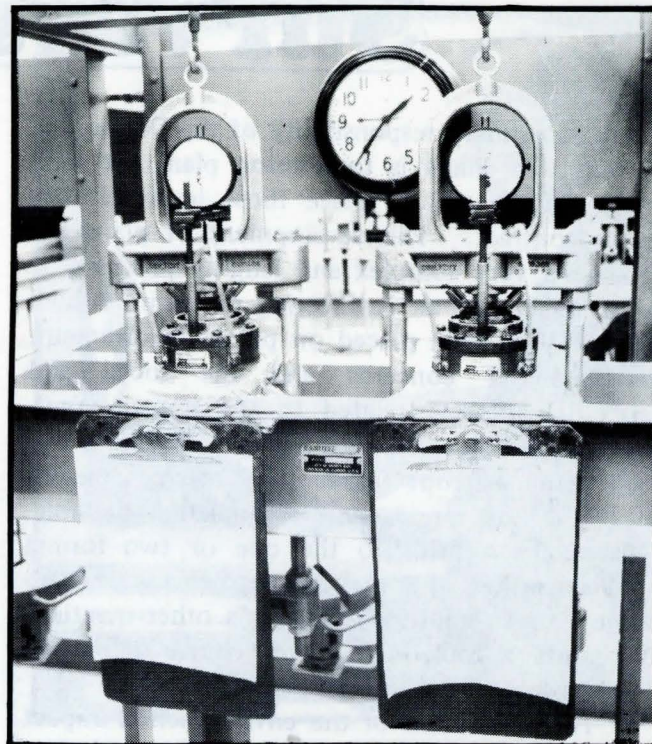


research. This helped determine if changes in design could be made to better serve the driving public.

The items studied in 1979 ranged from investigations of bridge deck protective systems to studies of basic engineering properties of problem earth materials. A total of seven major research projects were underway during 1979. Many minor projects such as deck condition studies on individual bridges and investigations of proposed new highway materials were also completed.

The Division was responsible for testing and recommendations regarding the soils, shales and rocks on which highway and bridges must be built. District personnel had to handle and plan local work necessary. Drilling equipment used to obtain subsurface information is headquartered in Jefferson City. It was dispatched wherever the need arose within the state. Specialized personnel were assigned to the Jefferson City office and were available to analyze materials. They also assisted the district personnel with individual problems found for the various proposed projects. Recommendations were made regarding the fills to be used on highways, steepness of side slopes and any other items concerning the soils or materials encountered on a proposed roadway.

In addition, these personnel also investigated slides which occurred on completed sections of roadway and recommended various solutions.



Major projects performed during the year included approximately 91 investigations regarding bridge locations. One of the major investigations performed was the subsurface investigation for the proposed ASB Bridge replacement in the Kansas City area.

The quantities of various materials inspected, tested and approved for 1979 included:

Aggregates	8,771,745 Tons
Cement	396,720 Tons
Reinforcing Steel	18,727 Tons
Culvert Pipe	
Corrugated Metal	119,386 Linear Feet
Reinforced Concrete	99,470 Linear Feet
Joints - Bituminous, Fiber and Metal	361,083 Linear Feet
Joints - Rubber	22,414 Square Feet
Guardrail	319,674 Linear Feet
Posts, Metal	149,420 Each
Lumber and Square Posts	1,410,065 Board Feet
Piling and Round Posts	2,635 Linear Feet
Bituminous Material	
Cutback	29,113,621 Gallons
Penetration	38,341,655 Gallons
Emulsified	31,744,122 Gallons
Paint	771,677 Gallons

The total of samples tested in the laboratory during 1979, including those of an experimental or investigational nature, amount to 35,502.



# Surveys & Plans

The primary responsibility of the Division of Surveys and Plans is to develop plans for road improvements and to place those improvements under contract. The development of plans has become a very complex and lengthy process. It is no longer just an engineering problem. Added emphasis has been placed on public involvement, environmental concerns and the social and economic impacts related to the improvement. Early public involvement in project planning was used in an attempt to identify areas of concern so that those areas can be avoided if possible. This occurred prior to the one or two formal public hearings where all facets of the project are discussed. In addition, numerous other meetings and contacts took place in the course of project development.

The assessment of the environmental impact of a project was a major activity. The environmental impact statement analyses cultural, social, and economic factors. Its preparation involved many disciplines other than engineering.

A noise study was prepared for many projects. This study determined areas where noise levels may exceed established standards and where control measures may be necessary. Noise information was also furnished to communities to enable them to consider this factor in future land zoning decisions.

The evaluation of existing air quality and the impact of the highway improvement on future air quality was a major factor in project development.

A cultural resource survey was used to identify historic locations, buildings and sites of

archaeological significance. Mitigation measures were applied as necessary to preserve or record information about significant items.

Any project involving a stream crossing required a "404 Permit" from the Corps of Engineers. Obtaining this permit many times became a time consuming process and sometimes ultimately required special mitigation procedures to satisfy all requirements and concerns of affected agencies and individuals.

Project development included negotiation for and arrangements for adjustment of all utilities located within the proposed project limits.

Consideration of these and other requirements was necessary to qualify road improvements for the use of Federal funds, which incidentally, provided a significant portion of the funding for road improvements in Missouri.

After all requirements were met, a project reached the stage where it could be advertised for letting. In 1979, ten lettings were held and construction projects totaling \$279,986,391.03 were placed under contract. The following table provides a resume of awarded projects for 1979:

For the ten lettings held in 1979, an average of 2.99 bids were received per project, and the average project cost exceeded the engineer's estimate by 6.79 percent. Prices continued on an upward trend with the 1979 Missouri Average Composite Price Index reaching 362.8, a 42 percent increase over the 1978 index of 255.3.

In addition to the activities leading to the contracting of a project, the Division of Surveys and Plans also administered several Federal-Aid

<u>1979 REPORT</u>	<u>AWARDS</u>	<u>MILES</u>	<u>PROJECTS</u>
Interstate System	\$173,642,700.44	157.268	80
Primary System	77,703,616.66	163.922	61
Supplementary	28,640,073.93	129.108	42
Total: Construction by Contract	279,986,391.03	450.298	183
Maintenance Work by Contract	7,099,542.51	618.242	87
Off-Systems Road Contract	3,574,614.86	6.257	14
FAU Funds (Awarded on State System) (Non-Contractual)	127,472.00	-	-



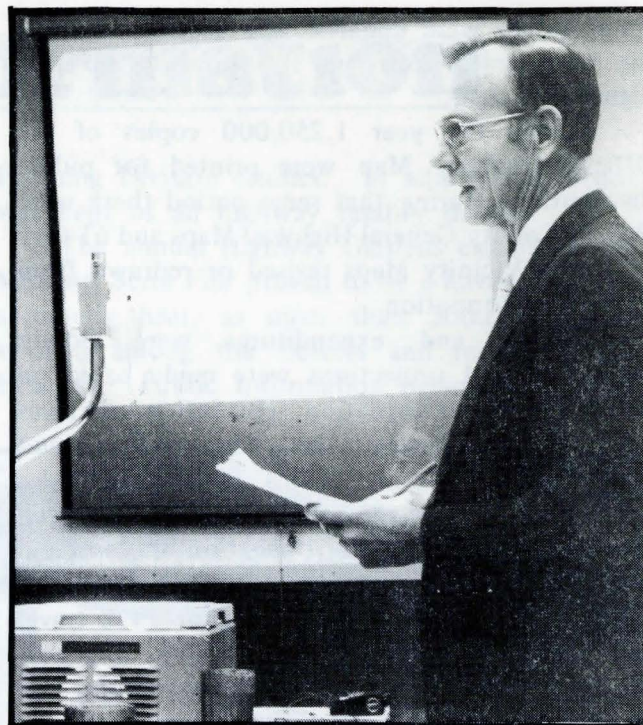
programs that provide funding to cities and counties for road improvement projects.

The Federal-Aid Urban Program provided Federal funding for street and highway construction to cities and urban areas over 5,000 population. During 1979 approximately \$26,712,000 was obligated throughout the State from this program. The FAU funds could be used to finance up to 75 percent of the cost of eligible projects. The local area was required to provide the 25 percent matching funds.

The Off-System and Safer Off-System Programs provided Federal funding for road improvements that were not on a Federal-Aid System. During 1979, approximately \$382,000 was obligated for improvement projects. This program requires a 25 percent match of local funds.

The Rail-Highway Program provided Federal funding to promote rail-highway crossing safety. Contracts were under negotiation for placement of 49 railroad signals on the Federal-Aid System, which included seven locations on city streets. This program resulted in an expenditure of approximately \$2,450,000.

A program started in 1978 to provide the minimum required warning devices at all railroad



crossings in the state was continued in 1979. Upon completion, this program will involve placement of approximately 5,000 reflectorized cross bucks, 6,400 advance warning signs, and 2,035 advance pavement markings. The cost of this program will be approximately \$1,200,000.

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## Planning

The Division of Planning is responsible for gathering and maintaining data relative to the state highway system. This data, in conjunction with a historical record of the development of the system, is utilized in long range planning and formulating other programs.

Working with local officials, the Division continued the comprehensive transportation planning process in the five urbanized areas of the state. Both short and long range plans were developed and evaluated for use in determining the multimodal needs of the total transportation system.

Traffic volumes used in the service rating of the highway network were developed from vehicle

counts collected at approximately 4,800 locations throughout the state. Additionally, roadside interviews with the traveling public were conducted in six cities to determine local highway needs. Speed monitoring on the state highway system at 37 locations was conducted to develop vehicular speed statistics.

The Division of Planning prepared information required to complete the National Highway Performance Monitoring Study. Service ratings were published, evaluating the condition, safety and service of all supplementary roads, bridges and highway-railroad grade crossings on the state highway system. Records of physical and geometric data for all roads and bridges on the



state system were updated, and used to evaluate the needs on all roads and structures on the state highway system.

During the year 1,250,000 copies of the Official Highway Map were printed for public distribution. During that same period there were also 19 County General Highway Maps and 61 City or Urban Vicinity Maps revised or redrawn from available information.

Income and expenditures were closely monitored and projections were made based on trends and recent legislation. This information was used in developing the Right-of-Way and Construction Program. This Program includes 1,275 improvement projects which are categorized into projects approved for obligation of funds and projects approved for design.

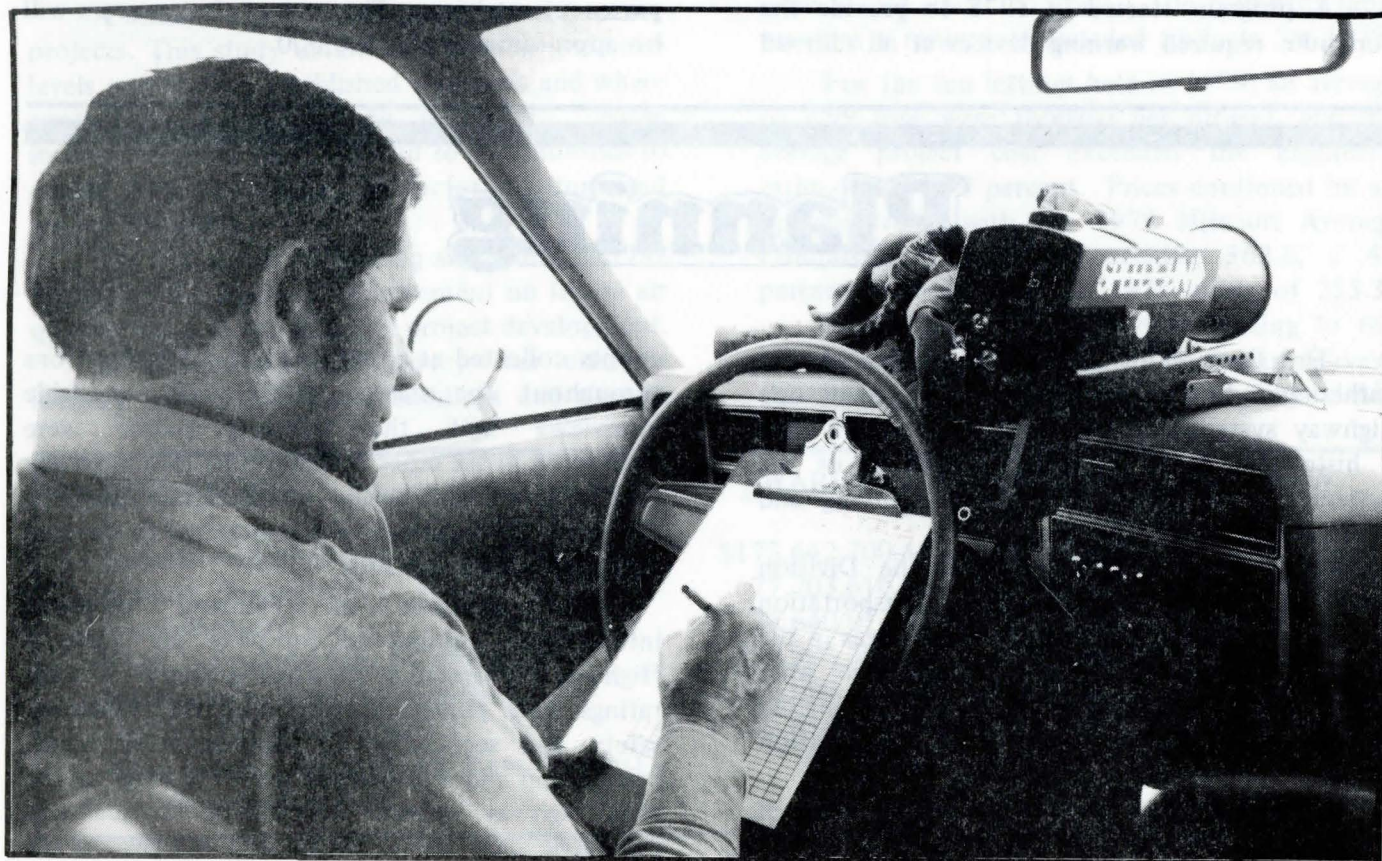
During the year, the tables for 1978 travel and accidents were prepared. Also, a report allocating the cost of constructing, maintaining and administering the state highway system to various vehicle classes was published.

The status of the state highway system as of December 31, 1979, is shown in the following table:

# STATUS OF THE STATE HIGHWAY SYSTEM AS OF DECEMBER 31, 1979

<u>SYSTEM</u>	<u>ROAD MILES</u>
Interstate	1,105.413
Primary	6,843.319
Supplementary	24,233.118
<u>TOTAL</u>	32,181.850

<u>TYPE</u>	
Oiled Earth	0.000
Granular	4.274
Low Type Bituminous	24,997.559
High Type Bituminous	4,234.837
Concrete	2,945.180
<u>TOTAL</u>	32,181.850





# Public Information

Functioning as the Department's spokesman to the interested publics and media, the Public Information Division listened and responded to public opinions, inquiries and requests concerning highway matters throughout 1979.

As public interest increased, so did the Division's dissemination of information about almost every facet of highway planning, building and systems operation increase. Numerous news releases informed citizens state-wide of highway affairs and how those affairs might affect their everyday lives. Leaflets, graphic displays and brochures such as "How to Drive Missouri's Freeways" and "Commuter Parking Lot Location Guide" further helped inform a curious public. Public Information personnel were in continuous contact with the state's news media.

Specifically, the Division prepared and distributed 397 news releases. Feature stories, special articles and photographs broadened the highway picture seen by Missouri's citizens.

An additional special communications tool aimed to keep highway employees and the interested public up-to-date on highway happenings was the Missouri Highway News. Published monthly, the newspaper had a circulation of 9,000 copies.

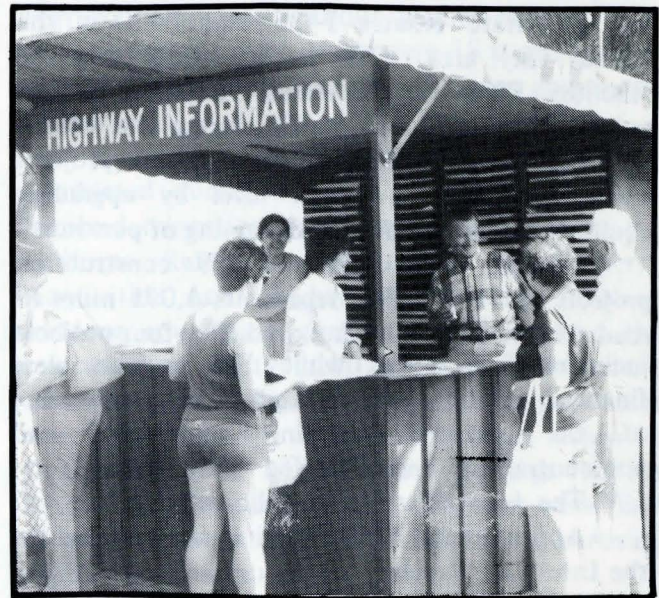
A special effort was made to inform a curious public of the effects of the proposed Amendment No. 2 for Missouri's Constitution on the highway organization. Personnel worked together to produce speeches, news releases, feature stories, slide shows and exhibits to reach all publics.

Meanwhile, speeches were prepared for presentation for Highway Department officials from the Headquarters Office and several Districts. The Division also prepared and published the Highway Commission's Annual Report.

To keep Commission members and Department officials informed about newspaper coverage and comment of highway affairs, a clipping service was continued. As newspapers piled in from all over the state, daily compilations were made. The information helped provide data on traffic study needs, as well as supply financial data from Missouri's counties and cities for

Planning Division studies. In addition, a record was kept of all highway fatality details.

The annual Highway Gardens exhibit at the Missouri State Fair proved to be a haven from the summer's heat, as more than 300,000 people strolled among the flowers and rested on the benches. Public Information personnel manned



the information booth, passing out state highway maps, county maps and other material while answering questions. At the same time, highway slide shows and movies ran in the Garden's theater.

Division personnel also kept busy answering more than 200 mail and telephone requests per month. Such requests involved, among other things, maps, road and travel information, historical information, routings, education materials and films.

Highway Department employees with 25 to 45 years of service under their belts were congratulated with the annual service awards program. Division personnel were responsible for planning and carrying out the program.

Finally, much effort was extended to the supervision and distribution of 1.25 million highway maps. The Department's technical library is also manned by this Division.



# Construction

The money value of construction work completed by contract during 1979 was \$253,386,108.00. This is a record amount of work completed during a year's time.

The final section of Interstate, Route I-44, was placed under contract during the year to bring I-44 up to Interstate standard in Missouri.

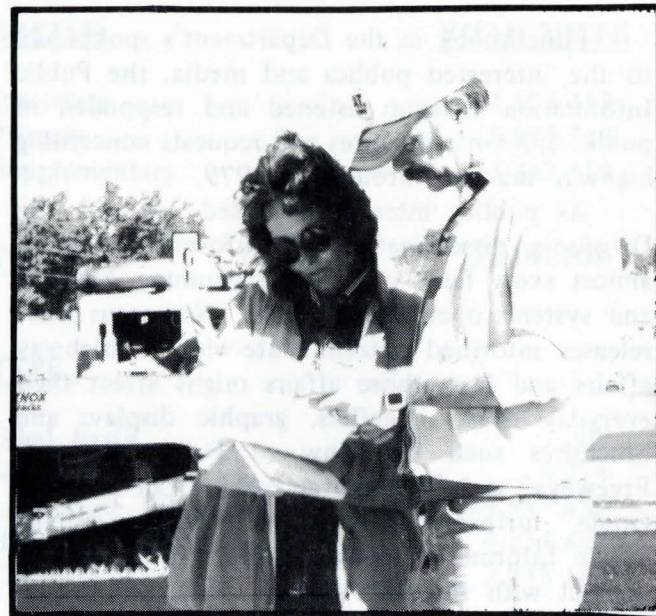
Construction work continues on Interstate I-170 in the St. Louis area, I-229 in St. Joseph and Interstate Routes I-435 and I-470 in the Kansas City area. The second bridge over the Missouri River for Interstate Route I-70 was redecked and open to traffic during the year.

Cost for inspection of construction projects were maintained at a low level by upgrading equipment and by additional training of personnel.

Awards were made on 259 construction projects in 1979. This represents 1,071 miles of road construction. One hundred fifty-four projects included Federal-Aid, while 105 projects were financed entirely by state funds. The money value of the awards, including engineering and non-contractual costs, totaled \$282 million.

The breakdown is as follows:

Approximately \$162 million was awarded for the Interstate System. Approximately \$91 million



was awarded for the Primary System. Approximately \$23 million was awarded for the Supplementary System. Approximately \$6 million was awarded for non-contractual costs. The breakdown totals \$282 million.

The Interstate System contracts involved new construction, upgrading existing dual facilities to

Below is a resume of the projects under construction that have not been completed.

## ACTIVE PROJECTS AS OF DECEMBER 31, 1979

System	Contracted 1975	Contracted 1976	Contracted 1977	Contracted 1978	Contracted 1979	Total
<b>FEDERAL AID</b>						
<i>Interstate</i>	0	0	4	7	51	62
<i>Primary</i>	1	1	6	21	37	66
<i>Supplemental</i>	0	0	2	2	14	18
<i>Off-System</i>	0	0	0	0	0	0
Sub-Total (FA)	1	1	12	30	102	146
<b>100% STATE</b>						
<i>Interstate</i>	0	0	0	0	1	1
<i>Primary</i>	0	0	5	19	2	26
<i>Supplementary</i>	0	0	0	2	6	8
Sub-Total (ST)	0	0	5	21	9	35
<b>GRAND TOTALS</b>	<b>1</b>	<b>1</b>	<b>17</b>	<b>51</b>	<b>111</b>	<b>181</b>



Interstate standards, rest areas, highway beautification and implementing the latest safety features for highway traffic. Approximately 30 miles were completed to Interstate standards this year. There are now under construction approximately 32 miles of Interstate road. Missouri has 1,098 miles of Interstate roads up to Interstate standards.

The Primary and Supplementary System contracts include costs of construction work in rural and urban areas and projects financed either with Federal-Aid or with 100 percent state funds. They include new construction, bridge replacements, widening and highway beautification projects. Where applicable, the latest safety features were included.

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## Legal

During 1979, condemnation proceedings were instituted in the various circuit courts of the state to obtain needed right-of-way for highway improvements involving 213 land tracts. A total of 249 condemnation cases were disposed of during the year at the trial court level. There were 14 appellate court decisions involving cases where the State Highway Commission was party.

A refund of \$653,454.91 was returned to the Highway Commission when condemnation judgments were found less than the amount originally awarded by condemnation commissioners and paid into the court. \$40,821.81 was collected in miscellaneous matters. Twenty-one actions were filed in court on behalf of the Commission to collect for damage to Commission-owned property. Twelve such suits were disposed of. \$359,749.37 was collected on claims for damage to State Highway Commission property. That amount includes collections from litigation as well as collections made without court action.

During the year, 44 court actions were filed naming the State Highway Commission as party involving various types of claims. Nineteen cases were instituted on behalf of the Commission to obtain compliance with the statutes relating to junkyard operation. Eight such cases were disposed of at the end of the year. This office had 43 active files relating to junkyard control. Compliance with the statute was obtained by the junkyard operators in 28 instances without court action necessary.

There were no formal contested hearings before the Public Service Commission regarding railroad-highway crossings. However, 41

applications regarding such crossings were filed and final orders obtained by agreement with the railroad companies without formal hearing.

During the year, there were 18 pending court cases disposed of in addition to those mentioned above.

Numerous administrative hearings were conducted during the year. Two such hearings involved relocation assistance payments under the Uniform Relocation Assistance and Property Acquisition Act. Eighty-seven hearings involved outdoor advertising signs, and one involved the relocation of utility facilities necessary to permit construction of a highway project. Thirty-six cases were filed in circuit court seeking court review of final decisions in administrative hearings relating to outdoor advertising signs. Six suits were filed to compel removal of illegal outdoor advertising signs.

In addition to litigation and administrative hearings handled by this office, numerous contracts where the Commission was party were prepared and approved.









# Right-of-Way

During 1979, the cost of right-of-way acquired for highway construction totaled \$20,563,892.

The Division acquired 818 parcels - 623 by negotiated settlement and 195 by condemnation, or 76 percent by negotiation and 24 percent by condemnation.

Payments totaling \$891,244.63 were made in 1979 under the Relocation Assistance and Payment Program to assist displaced families, business and farm operations in relocating. During the year, 505 relocation claims were processed and paid.

During the year, the Right-of-Way Division obtained appraisals for 1,001 parcels. Two

separate appraisals were prepared for 23 percent of the parcels involved, making a total of 1,231 appraisals produced. An average of 85 parcels were appraised each month, which required an average production of 104 separate appraisals per month.

Receipts from the sale of improvements located on right-of-way acquired for highway construction and from the sale of excess property totaled \$506,207.97.

Rental of advance acquisitions and excess property resulted in an income of \$124,807.31.

The Division is actively engaged in implementing the Highway Beautification Act which relates to the removal of nonconforming outdoor advertising signs and salvage yards.

INCIDENTAL RECEIPTS	
Refunds - Highway Fund	181,204.48
Transfer from Office of Administration	110,409.00
Refunds - Road Fund	9,061,301.76
Political Subdivision	346,256.34
	<u>20,563,892.00</u>
FEDERAL AID REIMBURSEMENT	
	2,117,946.73
	<u>2,117,946.73</u>
MISCELLANEOUS ESCROW FEES	
	181,463.12
	<u>181,463.12</u>
INTEREST RECEIVED - STATE ROAD FUND BALANCE	
	3,851,102.70
	<u>3,851,102.70</u>
	<u>24,714,348.03</u>
TOTAL RECEIPTS	



# Income

## MISSOURI STATE HIGHWAY DEPARTMENT STATEMENT OF RECEIPTS AND DISBURSEMENTS FOR YEAR ENDED DECEMBER 31, 1979

### BASIC REVENUE:

Motor Vehicle License	\$ 104,403,971.63	
Motor Bus & Truck Fees	\$ 2,051,976.00	
Motor Vehicle Use Tax	\$ 17,015,516.39	
Drivers License Fees	\$ 4,205,760.45	
Motor Vehicle Inspection Fees	\$ 1,919,552.50	
Motor Fuel Tax Receipts	<u>\$ 176,429,098.52</u>	\$ 306,025,875.49

### INCIDENTAL RECEIPTS:

Refunds - Highway Fund	\$ 161,204.68	
Transfer from Office of Administration	\$ 110,409.00	
Refunds - Road Fund	\$ 9,061,202.76	
Political Subdivision	<u>\$ 244,256.54</u>	\$ 9,577,072.98

FEDERAL AID REIMBURSEMENT:	\$ 227,174,940.73	\$ 227,174,940.73
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MISCELLANEOUS ESCROW FEES:	\$ 181,463.12	\$ 181,463.12
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INTEREST RECEIVED - STATE ROAD FUND BALANCE	\$ 3,851,105.70	<u>\$ 3,851,105.70</u>
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TOTAL RECEIPTS		<u><u>\$ 546,810,458.02</u></u>
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# Disbursements

## Disbursements

CONSTRUCTION	\$ 337,084,001.46
MAINTENANCE	\$ 139,549,945.83
MISSISSIPPI RIVER PARKWAY COMM.	\$ 7,439.15
ADMINISTRATION	\$ 24,370,511.14
O.A.S.I. (HIGHWAY DEPARTMENT)	\$ 5,506,168.73
GAS TAX REFUNDS	\$ 8,923,591.68
OTHER STATE DEPARTMENTS	\$ <u>60,236,407.80</u>

TOTAL DISBURSEMENTS

\$ 575,678,065.79



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